

EPA Registration No.
70051-107
vol. 1

This label was replaced

MASTER LABEL
SUBLABEL A: Agricultural Use

CX-9032

(alternate brand names: Amylo-X AS, Double Nickel LC)
Aqueous Suspension Biofungicide/Bactericide

FOR ORGANIC PRODUCTION



Active Ingredient:

Bacillus amyloliquefaciens strain D747*..... 98.85 %

Other Ingredients..... 1.15%

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS: 2.5 Gallons

Lot No.:

See Inside Panels for Additional Precautionary Statements

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product label with you when calling a poison control center or doctor.

Hot Line No.: 1-800-255-3924 for additional information



PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco and using the toilet.



PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow manufacturer's instructions for cleaning and maintaining PPE. If no instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides, the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticides get inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For Terrestrial Uses: Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

CX-9032 can be applied alone or in combination and/or rotation with chemical fungicides as a tool for integrated disease management in agricultural crops, ornamental and nursery plants, and turfgrass. CX-9032 offers a valuable tool for management of resistance to chemical fungicides through its multiple and unique modes of action.

CX-9032 can be applied up to and including the day of harvest.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is: coveralls, waterproof gloves, shoes plus socks.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

MIXING AND HANDLING INSTRUCTIONS

Mix the required amount of CX-9032 in water with sufficient agitation to maintain a uniform suspension in the spray or mixing tank. Tank should be cleaned prior to use. Do not use highly alkaline or highly acidic water to mix sprays. Use a buffering agent if necessary to maintain neutrality (pH 6 to 8) of water in the tank. Maintain agitation during application. Apply immediately after mixing; do not allow spray mix to stand overnight.

CX-9032 can be mixed and used with other agricultural chemicals for which such mixing is permitted by the product labels, in accordance with the most restrictive of those label limitations and precautions. If such a mixture is planned, a compatibility "jar test" should first be conducted by mixing the correct proportions of CX-9032 and these products in a small volume of water.

APPLICATION METHODS

Ground: CX-9032 can be applied in most commonly-used ground application equipment, such as (but not limited to): tractor-mounted boom, airblast, high clearance, hose-end, backpack, and

other pressurized sprayers; hose-end or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method.

APPLICATION METHODS (cont.)

Aerial: CX-9032 can be applied by fixed or rotary winged aircraft in a minimum of 3 gallons of water per acre. Standard precautions should be taken to minimize spray drift.

Chemigation: CX-9032 can be applied through drip (trickle) and sprinkler type irrigation equipment. Refer to the section entitled "Chemigation Instructions" for detailed instructions.

Agricultural crops

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Vegetables and melons:	
Brassica vegetables such as broccoli, cabbage, cauliflower, Brussels sprouts, kohlrabi, and other cole crops. (including those grown for seed production).	Pin rot complex (<i>Alternaria/Xanthomonas</i>)* Leaf spots (<i>Alternaria</i> spp., <i>Xanthomonas</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe polygoni</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Bulb vegetables such as onions, garlic, shallots, and others (including those grown for seed production).	<i>Botrytis</i> spp. (neck rot, leaf blight) Purple blotch (<i>Alternaria</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Rust (<i>Puccinia porii</i>)* White rot (<i>Sclerotium cepivorum</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Cucurbits such as cucumbers, squash (all types), cantaloupes, muskmelons, watermelons, and other melons (including those grown for seed production).	Powdery mildew (<i>Erysiphe</i> and <i>Sphaerotheca</i> spp.) Downy mildew (<i>Pseudoperonospora</i> spp.) Gummy stem blight (<i>Didymella bryoniae</i> and <i>Phoma cucurbitacearum</i>) See instructions below for "Soil application" against the following diseases: Vine decline (<i>Monosporascus cannonballus</i>) ** Charcoal rot (<i>Macrophomina phaseoli</i>) ** "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Fruiting vegetables such as tomatoes, peppers, eggplant, tomatillo, okra, and others (including those grown for seed production).	Bacterial spot (<i>Xanthomonas</i> spp.)* ¹ Bacterial speck (<i>Pseudomonas syringae</i> pv. <i>tomato</i>)* ¹ Gray mold (<i>Botrytis cinerea</i>) Powdery mildew* (<i>Leveillula</i> , <i>Oidiopsis</i> , <i>Erysiphe</i> , and <i>Sphaerotheca</i> spp.) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Southern blight (<i>Sclerotium rolfsii</i>)* and **
Leafy vegetables such as head and leaf lettuce, celery, spinach, radicchio, arugula, watercress, and others (including leafy <i>Brassica</i> vegetables such as mustard and collard greens, kale, bok choy, and related crops),	Downy mildew (<i>Bremia lactucae</i> , <i>Peronospora</i> spp.)* Powdery mildew (<i>Golovinomyces (Erysiphe) cichoracearum</i>)* Bacterial blights Head and leaf drop (<i>Sclerotinia</i> spp.)* ² Pink rot (<i>Sclerotinia sclerotiorum</i>)* ² Leaf spots (<i>Cercospora</i> spp.) See instructions below for "Soil application" against the following diseases:

including those grown for seed production.	"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Bottom rot (<i>Rhizoctonia solani</i>)
Legume vegetables succulent and dried beans and peas such as green, snap, shell, and Lima beans, garbanzo beans, chickpeas, soybeans, dry beans, peas, split peas, lentils, and other legumes, including those grown for seed production.	White mold (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Microsphaera diffusa</i>) Rusts*, including <i>Uromyces appendiculatus</i> , <i>Puccinia</i> spp., and Asian soybean rust (<i>Phayospora pachyrhizi</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Root, tuber, and corm vegetables such as potato, sweet potato, carrot, cassava, beets, ginger, radish, horseradish ²² , ginseng, turnip, and other root, tuber and corm crops, (including those grown for seed production)	Black root/crown rot (<i>Alternaria</i> spp.) Bacterial leaf blight (<i>Xanthomonas campestris</i>) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Gray mold (<i>Botrytis</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Black leg /bacterial soft rot (<i>Erwinia carotovora</i>)** Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: Black scurf (<i>Rhizoctonia solani</i>) Cavity spot (<i>Pythium</i> spp.) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Other vegetables such as sweet corn, popcorn, asparagus, peanut, and watercress	<i>Botrytis</i> spp. Rusts (<i>Puccinia</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> and <i>Cercosporidium</i> spp.)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tree fruits and nuts	
Citrus such as orange, lemon, lime, grapefruit, tangerine (mandarin), tangelo, pummelo, and other citrus	<i>Alternaria</i> leaf spot (<i>Alternaria alternata</i>) Postbloom fruit drop (<i>Colletotrichum acutatum</i>)* Greasy spot (<i>Mycosphaerella citri</i>)* ³ Citrus canker (<i>Xanthomonas campestris</i> pv. <i>citri</i>) ¹ Scab (<i>Elsinoe fawcetti</i>)* ⁴ Melanose (<i>Diaporthe citri</i>)*
Pome fruits such as apple, pear, crabapple, quince, and others	Powdery mildew (<i>Podosphaera leucotricha</i>) ⁵ Scab (<i>Venturia</i> spp.)* Flyspeck (<i>Zygophiala jamaicensis</i>) ^{6**} Sooty blotch disease complex ^{6**} Brooks spot (<i>Mycosphaerella pomi</i>) ^{6**} Bot rot/white rot (<i>Botryosphaeria dothidea</i>) ^{6**} Bitter rot (<i>Colletotrichum</i> spp.) ⁶ Cedar apple rust (<i>Gymnosporangium juniperi-virginianae</i>) ^{6**} Fire blight (<i>Erwinia amylovora</i>)* ⁷
Stone fruits such as apricot, cherry, nectarine, peach, plum, prune, pluot, and others	Powdery mildew (<i>Sphaerotheca</i> and <i>Podosphaera</i> spp.)* ⁸ Bacterial canker (<i>Pseudomonas</i> spp.) Brown rot blossom blight (<i>Monilinia laxa</i>) ⁹ Brown rot (<i>Monilinia fructicola</i>)* ¹⁰ Gray mold (<i>Botrytis cinerea</i>) ¹⁰ Peach leaf curl (<i>Taphrina deformans</i>) Bacterial leaf spot (<i>Xanthomonas arbuticola</i> pv. <i>pruni</i>) ¹ Rusty spot (<i>Podosphaera leucotricha</i>) ¹
Tree nuts such as almond, pistachio, pecan, walnut, filbert, hazelnut, chestnut,	Walnut blight (<i>Xanthomonas campestris</i>) ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>)* Bacterial canker (<i>Pseudomonas syringae</i>)

macadamia, and other tree nuts.	Shot hole (<i>Wilsonomyces carpophilus</i>)* Brown rot (<i>Monilinia</i> spp.)* Pecan scab (<i>Cladosporium caryigenum</i>)* ¹ and **
Pomegranates	Leaf and fruit spots (<i>Cercospora</i> , <i>Gloeosporium</i> and <i>Pestalotia</i> spp.) ¹ Fruit rots (<i>Alternaria</i> , <i>Botrytis</i> , and other spp.) ¹⁰ Powdery mildew (<i>Sphaerotheca pannosa</i>)
Other fruits	
Strawberry	Powdery mildew (<i>Sphaerotheca macularis</i> , <i>Erysiphe</i> spp.)* ¹² Gray mold (<i>Botrytis cinerea</i>)* ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>) Angular leaf spot (<i>Xanthomonas fragariae</i>) ¹ For the following diseases, see instructions below for "Soil application" (and also root dip instructions ²²): "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. Charcoal rot (<i>Macrophomina phaseolina</i>)*
Berries , including blueberry, blackberry, raspberry, loganberry, huckleberry, kiwifruit, gooseberry, elderberry, cranberry (non-flooded fields), currant, and other berries	Mummy berry (<i>Monilinia vaccinii-corymbosi</i>)* Botrytis blight (<i>Botrytis cinerea</i>) Bacterial canker (<i>Pseudomonas</i> spp.) ¹³ Anthracnose fruit rot (<i>Colletotrichum acutatum</i>) ¹⁰ Sclerotinia (<i>Sclerotinia sclerotiorum</i>)
Grapes including wine grapes, table grapes, and raisins	Powdery mildew (<i>Erysiphe</i> (formerly <i>Uncinula</i>) <i>necator</i>) ¹⁴ Gray mold (<i>Botrytis cinerea</i>) ¹⁵ Sour rot complex ¹⁵ Downy mildew (<i>Plasmopara viticola</i>)* Phomopsis (<i>Phomopsis viticola</i>) ¹⁶ Eutypa (<i>Eutypa lata</i>) ¹⁷
Tropical fruits such as avocado ¹⁸ , mango ¹⁸ , papaya ¹⁹ , pineapple ¹⁹ , banana, plantain, and others.	Anthracnose (<i>Colletotrichum</i> spp.) Scab (<i>Sphaceloma perseae</i>) Bacterial canker (<i>Xanthomonas campestris</i>) Sigatoka (<i>Mycosphaerella fijiensis</i>) ²⁰
Other Crops	
Herbs and spices such as basil, thyme, coriander, dill, cilantro, parsley, mint, and others (including those grown for seed production).	Powdery mildews (<i>Oidium</i> spp. and others) Downy mildews (<i>Peronospora</i> spp. and others)* Damping off diseases (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Alternaria</i> , and <i>Fusarium</i> spp.) Leaf spots (<i>Alternaria</i> , <i>Septoria</i> , <i>Colletotrichum</i> , and <i>Cercospora</i> spp.)* Bacterial diseases (<i>Erwinia</i> , <i>Xanthomonas</i> , and <i>Pseudomonas</i> spp.) Rusts (<i>Puccinia</i> spp. and others) "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Coffee	Coffee berry disease (<i>Colletotrichum coffeanum</i>) ¹ Coffee rust (<i>Hemileia vastatrix</i>) ¹ ** Anthracnose (<i>Colletotrichum</i> spp.) <i>Botrytis</i> flower blight <i>Cercospora</i> leaf spot** and berry blotch** "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tobacco	Angular leaf spot (<i>Pseudomonas</i> spp.) Anthracnose (<i>Colletotrichum</i> and <i>Glomerella</i> spp.) Blue mold or downy mildew (<i>Peronospora</i> spp.)* Brown spot (<i>Alternaria</i>) Barn spot/ frog-eye leaf spot (<i>Cercospora nicotianae</i>) ¹⁰ Collar rot (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Erysiphe cichoracearum</i>)

	<p>Target spot (<i>Rhizoctonia solani</i>)</p> <p>See instructions below for "Soil application" against the following diseases:</p> <p>"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i>, <i>Rhizoctonia</i>, <i>Fusarium</i>, <i>Olpidium</i>, <i>Phytophthora</i>, or <i>Verticillium</i>* spp.</p> <p>Charcoal rot (<i>Macrophomina phaseolina</i>)</p> <p>Black root rot (<i>Thielaviopsis basicola</i>)</p> <p>Black shank (<i>Phytophthora</i> spp.)*</p> <p>Southern blight/southern stem rot (<i>Sclerotium rolfsii</i>)*</p>
Corn (including field corn, sweet corn, popcorn, silage corn, seed corn, and other corn crops)	<p>Common rust (<i>Puccinia sorghi</i>)</p> <p>Southern leaf blight</p> <p>(<i>Bipolaris maydis</i>/<i>Cochliobolus heterostrophus</i>/<i>Helminthosporium maydis</i>)</p>
Cereal grains , such as barley, millet, oats, rice, rye, sorghum, triticale, wheat, and other cereal grain crops (including those grown for seed).	<p>Powdery mildew (<i>Erysiphe graminis</i>)</p> <p>Rust (<i>Puccinia</i> spp.)*</p> <p>Rice blast (<i>Pyricularia oryzae</i>)</p> <p>Sheath spot/blight (<i>Rhizoctonia</i> and <i>Thanatephorus</i> spp.)</p> <p>Smut (<i>Tilletia barclayana</i>)</p> <p>Bacterial blight/streak (<i>Xanthomonas</i> spp.)</p> <p>Stem rots (<i>Magnaporthe</i> and <i>Sclerotium</i> spp.)</p> <p><i>Cercospora</i> leaf spot</p> <p>Brown rot/leaf spots/smuts (<i>Ceratobasidium</i>, <i>Cochliobolus</i>, <i>Dreschlera</i>, and <i>Entyloma</i> spp.)</p>
Oilseed crops , including canola, castor, coconut, cotton, flax, oil palm, olive, peanut, rapeseed, safflower, sesame, sunflower, soybeans, and other oilseed crops, including those grown for seed production.	<p>White mold/Stem rot (<i>Sclerotinia sclerotiorum</i>)</p> <p>Rusts*, including <i>Uromyces appendiculatus</i>, <i>Puccinia</i> spp., and Asian soybean rust (<i>Phyospora pachyrhizi</i>)</p> <p>Bacterial Speck (<i>Pseudomonas syringae</i> pv. <i>glycinea</i>)</p> <p>Bacterial Pustule (<i>Xanthomonas</i> spp.)</p> <p>Brown Spot (<i>Septoria glycines</i>)</p> <p><i>Cercospora</i> Leaf Spot</p> <p>Pod and Stem Blights (<i>Diaporthe</i> and <i>Phomopsis</i> spp.)</p> <p>Downy Mildew (<i>Peronospora mansherica</i>)</p>
Mint	Rust (<i>Puccinia</i> spp.)
Mushrooms	Green mold (<i>Trichoderma harzianum</i>)*
Hops	Powdery mildew (<i>Sphaerotheca macularis</i>) ²¹
Sugar beets (including crops grown for seed production)	<p>Leaf spots (<i>Cercospora</i> and <i>Ramularia</i> spp.)</p> <p>Powdery mildew (<i>Erysiphe</i> spp.)</p> <p>Rust (<i>Uromyces betae</i>)</p>

Footnotes:

*Suppression only; for improved control mix or rotate with chemical fungicide approved for such use. ** NOT FOR USE IN CALIFORNIA

¹ Tank mix or rotate with copper-based fungicides at label rates for improved control.

² Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist.

³ For greasy spot suppression, apply at first new foliar flush and repeat with each new flush. Tank mix with spray oil or copper based fungicide at labeled rates.

⁴ For suppression of citrus scab, start applications at first new foliage flush and repeat at petal fall and when fruit are 1/2 inch in diameter.

⁵ Make first application at or before tight cluster if conditions favor disease development. Repeat at 7-10 day intervals through the second cover spray or longer on susceptible varieties or if environmental conditions favor rapid disease development.

⁶ Begin applications before bloom when environmental conditions favor disease development, repeating at 7 to 14 day intervals or as needed. Control may be enhanced by addition of a surfactant to improve spray coverage. Use only surfactants known to be safe for use on the crop and for which such use is allowed.

⁷ Rotate with antibiotics registered for fire blight control for improved performance. Begin applications at 1-5% open blossoms and repeat every 3-7 days as necessary until petal fall, when intervals can be increased to 7 days. CX-9032 can also be used in summer "cover spray"

applications to control the shoot blight phase of fire blight and summer diseases. Can be mixed with copper fungicides to improve control.

⁸ Make first application at popcorn stage and repeat every 7 days.

⁹ Start applying at early bloom stage and repeat every 7 days through petal fall.

¹⁰ Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections.

¹¹ Begin applications at or before pistillate bloom, repeating every 7-10 days. Apply before rainfall if possible, and tank mix or rotate with a copper-based bactericide registered for such use for improved control.

¹² Start applications at or just before flowering and repeat every 7-10 days as needed through harvest.

¹³ Apply before fall rains and again during dormancy before spring growth.

¹⁴ Start applications when new shoots are ½ to 1½ inches long. Repeat at 3-5 inches, 8-10 inches, and then at 7-10 day intervals until disease conditions no longer exist.

¹⁵ Apply at bloom, before bunch closure, at veraison, and before harvest.

¹⁶ Apply when shoots are ½ to 1 inch long and again when 6-8 inches long.

¹⁷ Mix 2 fluid ounces CX-9032 per gallon of water and apply to pruning wounds.

¹⁸ Apply at budbreak and repeat on 14-21 day interval as needed through harvest.

¹⁹ Apply at flowering and repeat on 14-21 day interval as needed through harvest.

²⁰ Apply at first appearance of leaves and repeat at 7-21 day intervals as needed, in sufficient water to obtain thorough coverage of foliage. Tank mix with spray oil or other registered fungicides for improved control.

²¹ Mix 6 to 10 fluid ounces CX-9032 per 100 gallons of water and apply in minimum of 20 gallons per acre from emergence to training, 50 gallons per acre from training to wire, and 100 gallons per acre from wire touch through harvest.

²² For treatment of horseradish or strawberry roots immediately before transplanting: immerse bare roots (individually or in bunches) for 10 seconds in a suspension of 1 to 2 pints CX-9032 per gallon of water.

Foliar application: For control of diseases on foliage, flowers, fruit, or other above-ground parts of plants: Mix CX-9032 in water and apply as a spray at a rate of **0.5 to 6 quarts** of CX-9032 per acre in sufficient water to achieve thorough coverage of the crop canopy with minimal runoff. Begin applications at crop emergence, transplanting, or when conditions are conducive to development of disease. Repeat application every 3 to 10 days, or as needed, for as long as conditions favor disease development. Lower rates (0.5 to 3 quarts per acre) may be applied under light disease pressure, to smaller (e.g. newly-emerged) plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (3-6 quarts/acre), apply more frequently (every 3-7 days), and mix or rotate CX-9032 with other fungicides for improved performance.

Soil application: For control of soilborne diseases infecting seeds, seedlings, roots, crown, stems, or other plant parts below ground or in contact with soil: Apply CX-9032 at **0.5 to 4.5 pints per acre**. Mix the required amount in sufficient water to apply by one of the following methods:

- Soil drench applied to transplants in flats or pots in the greenhouse or nursery any time prior to transplanting (see additional drench instructions under “Nurseries, greenhouses, shade houses, and ornamental plants” below).
- Soil drench at transplanting, using a “water wheel” injector, spray nozzles/hoses, or other method to drench each root ball and/or planting hole.
- Soil or seedline drench, or banded spray (in-furrow) at planting. See the section on “Banded (in-furrow) application” below for additional instructions.

Follow-up (post-planting) preventative applications can be made every 2-4 weeks by one or more of the following methods, if needed:

- Drip (trickle) or any type of sprinkler irrigation, any time after planting or transplanting. See Chemigation Instructions for additional information.
- Spray directly onto the soil surface and/or lower plant parts. If targeting root disease, follow immediately with sufficient overhead sprinkler irrigation to move CX-9032 to the root zone.

- Injection directly into the rooting zone using shanks or similar equipment.

Lower rates (0.5 to 2 pints of CX-9032 per acre) may be applied under light disease pressure, to smaller plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (2 - 4.5 pints per acre), apply more frequently (every 2 weeks), and mix or rotate CX-9032 with other fungicides for improved performance.

Banded (in-furrow) application: Use the table below (rate CX-9032 per acre) to determine the correct application rate in fluid ounces per 1,000 row feet based on row spacing and desired rate per acre. Mix the required amount of CX-9032 in water and apply as banded spray (4" to 6" wide) or seedline drench centered over the planting furrow. Apply directly over seeds in the furrow just before they are covered with soil. The volume of water required per acre or per 1,000 row feet will depend on the application equipment used. Consult your local cooperative extension service if you need assistance calibrating band spraying equipment.

Rates for banded (in-furrow) application: Find desired application rate of CX-9032 per acre in the left column. Read across that line to the correct row spacing indicated at the top to find the number of fluid ounces per 1,000 row feet that will provide the desired application rate per acre.

Rate/acre		Space between rows (inches)														
Pints	fl oz	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
0.5	8	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
0.75	12	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
1.0	16	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2
1.25	20	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.5
1.5	24	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8
1.75	28	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
2.0	32	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2.25	36	0.8	1.0	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	2.3	2.5	2.6	2.8
2.5	40	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9	3.1
2.75	44	1.0	1.2	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2	3.4
3.0	48	1.1	1.3	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.5	3.7
3.25	52	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
3.5	56	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.3
3.75	60	1.4	1.6	1.8	2.1	2.3	2.5	2.8	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6
4.0	64	1.5	1.7	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
4.25	68	1.6	1.8	2.1	2.3	2.6	2.9	3.1	3.4	3.6	3.9	4.2	4.4	4.7	4.9	5.2
4.5	72	1.7	1.9	2.2	2.5	2.8	3.0	3.3	3.6	3.9	4.1	4.4	4.7	5.0	5.2	5.5

Mushrooms

Mushrooms spawn grains: Mix 2 to 4 pounds of CX-9032 with 80 - 100 pounds of gypsum, limestone, or chalk. Coat approximately 1,600 units of spawn grains using this mixture before mixing the spawn into the mushroom growing substrate. Apply treated spawn to approx. 8,000 square feet of bed surface at spawning.

Mushroom growing supplement: Mix 2 to 4 pounds of CX-9032 with 80 – 100 pounds of gypsum, limestone, or chalk. Coat approximately 2,000 pounds of supplement using this mixture before mixing the supplement into the mushroom growing substrate. Apply treated supplement to approx. 8,000 square feet of bed surface at spawning.

Mushroom growing beds: Mix 1 to 3 pounds of CX-9032 per 100 gallons of irrigation water and apply as a drench at approximately 20 gallons per 1,000 square feet of bed surface (1 gallon of drench will treat approximately 50 square feet). Maintain sufficient agitation/circulation in the irrigation to ensure uniform mixing. Depending on disease pressure, apply at one or more of the following timings: before first flush, between first and second flush, and/or between second and third flush.

Nurseries, greenhouses, shadehouses, and ornamental plants

Spray application: Mix 0.5 to 6 quarts of CX-9032 per 100 gallons of water and apply as a foliar spray of sufficient volume to wet the entire plant with minimal runoff. Begin preventative applications at plant emergence and repeat every 3-28 days as needed (every 3-7 days if disease pressure is high or environmental conditions are highly favorable to disease outbreak, 10-28 days under low pressure or less conducive conditions).

Drench application: Mix 0.5 to 4.5 pints of CX-9032 per 100 gallons of water and apply as a drench or coarse spray to soil or other growing media in pots, flats, plugs, trays, or planting beds, for control or suppression of soilborne diseases of seedlings, cuttings, bedding plants, and transplants (including vegetables and other transplanted food crops). Make first application at or immediately before seeding, sticking, germination, or transplanting. Repeat applications every 14-28 days as needed. Transplants can be treated immediately before transplanting into field soils to protect against damping-off and other diseases that reduce plant establishment.

Cutting or root dip: Dip basal end of cuttings or bare roots (individually or in bunches) in a suspension of 1 to 2 pints of CX-9032 per gallon of water. Immerse for 5-10 seconds immediately before planting.

Chemigation: Mix 0.5 to 4.5 pints of CX-9032 per 100 gallons of water and apply via drip, handheld, or sprinkler irrigation systems. Refer to "Chemigation Instructions" for more details.

CROPS/USE SITES	DISEASES/PATHOGENS
Indoor, outdoor, and shade- or other cover-grown ornamental trees and shrubs, flowering plants, foliage plants, tropical plants, potted plants, potted or cut flowers, bedding plants, forestry seedlings, conifer production for reforestation, fruit trees, vegetables and other crops grown in greenhouses or nurseries.	Powdery mildews caused by <i>Erysiphe</i> , <i>Podosphaera</i> , <i>Sphaerotheca</i> , <i>Oidium</i> , and <i>Golovinomyces</i> spp.
	Anthrachnose (<i>Colletotrichum</i> spp.)
	Bacterial leaf spots caused by <i>Erwinia</i> , <i>Pseudomonas</i> , and <i>Xanthomonas</i> spp.
	Damping-off disease (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> spp.)
	Late blight, blackeye, and root rots caused by <i>Phytophthora</i> spp.
	Gray mold and blight caused by <i>Botrytis cinerea</i>
	Black root rot (<i>Aspergillus</i> spp.)
	Black spot of roses (<i>Diplocarpon rosae</i>)
	Downy mildew (<i>Peronospora</i> spp.)
	Leaf spots caused by <i>Alternaria</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Entomosporium</i> , <i>Helminthosporium</i> , and <i>Myrothecium</i> spp.)
	Rust (<i>Puccinia</i> spp.)
	Scab (<i>Venturia</i> spp.)
	Root rot, bottom rot, or stem rot caused by <i>Rhizoctonia solani</i>
	<i>Sclerotinia</i> blight
	<i>Fusarium</i> wilts

Turfgrass application

For control of foliar diseases, apply CX-9032 at 1 to 4 fluid ounces per 1,000 square feet as a ground-directed spray in sufficient water to provide thorough coverage. To control root and crown diseases in or on the soil, immediately follow the spray with sufficient overhead sprinkler irrigation to move the product into the root zone.

USE SITES/CROPS	DISEASES/PATHOGENS
Turf, sod, lawns, golf course (fairways, roughs, greens, tees), grass seed production Including but not limited to: Bluegrass, Bentgrass, Bermudagrass (common & hybrid), Dichondra, Fescue, Orchardgrass, <i>Poa annua</i> , St. Augustine grass, Ryegrass, <i>Zoysia</i> , mixtures, and other grasses or ornamental turf	Anthracnose (<i>Colletotrichum graminicola</i>) Brown patch (<i>Rhizoctonia solani</i>) Dollar spot (<i>Lanzia</i> and <i>Moellerodiscus</i> spp., formerly <i>Sclerotinia homeocarpa</i>) Powdery mildew (<i>Erysiphe graminis</i>) Rust (<i>Puccinia</i> spp.) Gray leaf spot (<i>Pyricularia grisea</i>) "Damping off" or seedling blights caused by <i>Pythium</i>

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep unprotected persons out of treated areas until sprays have dried.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

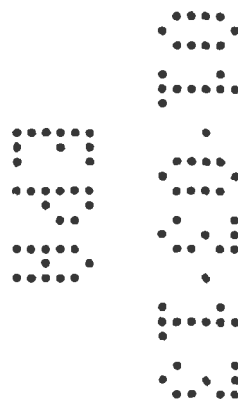
Pesticide Disposal: Wastes resulting from the use of this product may be disposed of onsite or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. **For containers equal to or less than 5 gallons:** Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke. **For containers greater than 5 gallons:** Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling,

STORAGE AND DISPOSAL cont.

For containers greater than 5 gallons:

If available, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.



CHEMIGATION INSTRUCTIONS

General information:

Apply this product only through drip (trickle) irrigation (including micro-irrigation through spaghetti tubes or individual tubes) or sprinkler irrigation (including impact or microsprinklers, microjet, overhead boom, water gun, solid set, lateral move, end tow, side-roll, center pivot, or hand move, including mist-type systems); or with hand-held calibrated irrigation equipment (such as a hand-held wand with injector). Do not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and injector system and flush with clean water before use. Failure to provide a clean tank, free of scale or residues may reduce effectiveness of this product.

Drip (trickle) and micro-irrigation chemigation

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.

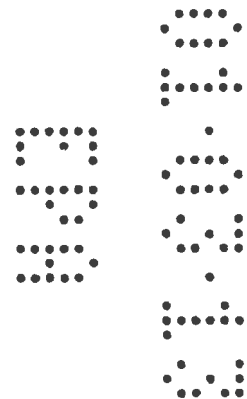
Sprinkler chemigation:

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

WARRANTY

Certis USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purpose referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the disease problem, condition of the crop, incompatibility with other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage, or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.



MASTER LABEL
SUBLABEL B: Residential Use

OMRI placeholder

CX-9032

Aqueous Suspension Biofungicide/Bactericide for control of plant diseases in home gardens: vegetables, ornamental and fruit trees, shrubs, lawns, flowers, bedding plants, and potted ornamental plants

FOR ORGANIC GARDENING

Active Ingredient:

Bacillus amyloliquefaciens strain D747* 98.85 %

Other Ingredients 1.15 %

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS:

Lot No.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS (AND DOMESTIC ANIMALS): CAUTION:

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor. Hot Line No.: 1-800-255-3924 for additional information

ENVIRONMENTAL HAZARDS:

To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Mixing instructions:

CX-9032 must be mixed with water and applied as a spray to fruit and foliage, or as a drench to plant roots. See below for specific mix rate information.

Application rates and methods:

Spray application for control of powdery mildews, leaf spots, anthracnose, gray mold, and other diseases affecting leaves, flowers, fruit, and other above-ground plant parts of home garden plants: Mix 1 teaspoon of CX-9032 per gallon of water and apply directly to plants using a hand pump sprayer or other suitable spray equipment. Spray just enough to wet all leaves and fruit with minimal run-off or dripping. Total coverage depends on the size of plants to be sprayed and the type of sprayer used. Repeat as needed to maintain disease control, typically every 7-10 days. If disease is prevalent or environmental conditions such as high humidity favor disease outbreak, increase the mixing rate to 1 tablespoon per gallon and shorten the interval between sprays to every 3-7 days.

Drench application for control of diseases affecting plant roots, tubers, or other parts of plants in contact with soil in the home garden: Mix 1 teaspoon of CX-9032 per gallon of water and apply to the soil by one of the following methods:

1. For potted plants (indoors or outdoors), apply in sufficient water to wet the entire root mass using a watering can or tank-fed watering wand. Do not water plants again until 24 hours after application. Alternatively, use a hand-pump or other sprayer to spray the mixture on the soil surface in each pot, then immediately apply sufficient water to move the product into the roots.

2. Drench the roots of transplants with approx. 4 fluid ounces of the mixture immediately before transplanting into pots or garden soil. Allow to soak into the root ball before transplanting.
3. For outdoor-grown plants, use a watering can or sprayer to drench the soil in the planting furrow or transplant hole immediately before planting or transplanting. The amount of water required will depend on the size of the hole or length of furrow.
4. Alternatively, apply in the first watering after planting or transplanting, either by mixing directly into the water at the rate indicated above, or by spraying onto the soil surface at the base of each plant and immediately watering in with a watering can, hose, sprinkler, or other watering device.

CX-9032 can be applied up to and including the day of harvest.

For application to lawns and other grass areas: Mix 1 teaspoon of CX-9032 per gallon of water and apply as a fine spray to the surface of the lawn or grass area. Total amount of mix required will depend on the type of sprayer used and area to be covered, but typically 2 to 5 gallons of spray mix may be required per 1,000 square feet of lawn. CX-9032 can be "watered in" for control of soilborne root and crown diseases by thorough watering immediately after application either with sprinklers or by spraying just before or during light rain.

STORAGE AND DISPOSAL

PESTICIDE STORAGE:

Keep in original container. Store away from direct sunlight, feed, or foodstuffs. Keep container tightly sealed when not in use.

PESTICIDE DISPOSAL AND CONTAINER HANDLING

Non-refillable container. Do not reuse or refill container.

If empty:

Place in trash or offer for recycling, if available.

If partly filled:

Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY

Certis USA L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the insect problem, condition of the crop, incompatibility with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.



Hand-Delivered

October 9, 2012

Kimberly Nesci, Acting Chief
Microbial Pesticides Branch
Biopesticides & Pollution Prevention Division (7504P)
Office of Pesticide Programs
US Environmental Protection Agency

Re: Certis U.S.A. L.L.C. Company Number: 70051
Notification of Addition of Text Required by CADPR
CX-9032: EPA Registration Number 70051-107; Double Nickel LC

Dear Ms. Nesci:

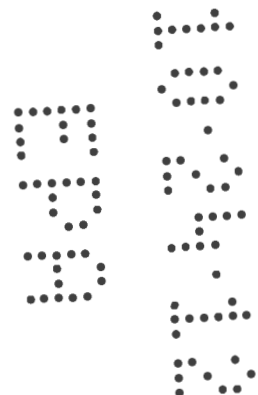
On behalf of Certis U.S.A., L.L.C. (9145 Guilford Road, Suite 175, Columbia, Maryland 21046), I respectfully submit a *Notification (EPA Form 8570-1)* to provide the additional text "Not For Use in California" and noted asterisks to the Master Label CX-9032 (market label Double Nickel LC). No other changes have been made to the EPA stamped label, dated December 16, 2011. We have also added the referral statement for product packaging.

Please do not hesitate to contact me if you have any questions about this submission. I can be reached by telephone at 301-483-3806 or by email at cdively@certisusa.com.

Sincerely,

Christine A. Dively
Director of Regulatory Affairs
Certis USA

enclosure





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

APR 26 2013

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Christine A Dively
Certis USA
9145 Guiford Road
Suite 175
Columbia, MD 21046

RE: Product Name: CX-9032
EPA Reg. No: 70051-107
Application for Notification Request Dated December 12, 2012 for Revision to Add Container
Handling Statements for Containers Larger than 5 Gallons

Dear Ms. Dively:

The Biopesticides and Pollution Prevention Division is in receipt of your application for Notification under Pesticides Registration Notice (PRN) 98-10 dated above. A preliminary screen of this request has been conducted for its applicability under PRN 98-10 and it has been determined that the action(s) requested falls within the scope of PRN 98-10. Our records have been duly noted, and the letter submitted with this application has been stamped "Notification, received and accepted" and will be placed accordingly in our records.

Questions concerning this action should be directed to Susanne Cerrelli (703) 308-8077 or email at cerrelli.susanne@epa.gov.

Sincerely,

Kimberly Nesci, Chief
Microbial Pesticides Branch
Biopesticides and Pollution Prevention
Division (7511P)

CONCURRENCES

SYMBOL ▶	7511P	7511P						
SURNAME ▶	Sheriff	Nesci						
DATE ▶	4/25/13	4/25/13						

Notification Accepted

Date: APR 26 2013
Reviewer: *Severell*

MASTER LABEL
SUBLABEL A: Agricultural Use

CX-9032

(alternate brand names: Amylo-X AS, Double Nickel LC)
Aqueous Suspension Biofungicide/Bactericide
FOR ORGANIC PRODUCTION



Active Ingredient:

Bacillus amyloliquefaciens strain D747* 98.85 %

Other Ingredients 1.15%

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107
EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.
9145 Guilford Rd., Suite. 175
Columbia, MD 21046

NET CONTENTS: 2.5 Gallons

Lot No.:

See Inside Panels for Additional Precautionary Statements

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product label with you when calling a poison control center or doctor.
Hot Line No.: 1-800-255-3924 for additional information

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS
CAUTION

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco and using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow manufacturer's instructions for cleaning and maintaining PPE. If no instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides, the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticides get inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For Terrestrial Uses: Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

CX-9032 can be applied alone or in combination and/or rotation with chemical fungicides as a tool for integrated disease management in agricultural crops, ornamental and nursery plants, and turfgrass. CX-9032 offers a valuable tool for management of resistance to chemical fungicides through its multiple and unique modes of action.

CX-9032 can be applied up to and including the day of harvest.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is: coveralls, waterproof gloves, shoes plus socks.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

MIXING AND HANDLING INSTRUCTIONS

Mix the required amount of CX-9032 in water with sufficient agitation to maintain a uniform suspension in the spray or mixing tank. Tank should be cleaned prior to use. Do not use highly alkaline or highly acidic water to mix sprays. Use a buffering agent if necessary to maintain neutrality (pH 6 to 8) of water in the tank. Maintain agitation during application. Apply immediately after mixing; do not allow spray mix to stand overnight.

CX-9032 can be mixed and used with other agricultural chemicals for which such mixing is permitted by the product labels, in accordance with the most restrictive of those label limitations and precautions. If such a mixture is planned, a compatibility "jar test" should first be conducted by mixing the correct proportions of CX-9032 and these products in a small volume of water.

APPLICATION METHODS

Ground: CX-9032 can be applied in most commonly-used ground application equipment, such as (but not limited to): tractor-mounted boom, airblast, high clearance, hose-end, backpack, and

other pressurized sprayers; hose-end or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method.

APPLICATION METHODS (cont.)

Aerial: CX-9032 can be applied by fixed or rotary winged aircraft in a minimum of 3 gallons of water per acre. Standard precautions should be taken to minimize spray drift.

Chemigation: CX-9032 can be applied through drip (trickle) and sprinkler type irrigation equipment. Refer to the section entitled "Chemigation Instructions" for detailed instructions.

Agricultural crops

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Vegetables and melons:	
Brassica vegetables such as broccoli, cabbage, cauliflower, Brussels sprouts, kohlrabi, and other cole crops.	Pin rot complex (<i>Alternaria/Xanthomonas</i>)* Leaf spots (<i>Alternaria</i> spp., <i>Xanthomonas</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe polygoni</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Bulb vegetables such as onions, garlic, shallots, and others.	<i>Botrytis</i> spp. (neck rot, leaf blight) Purple blotch (<i>Alternaria</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Rust (<i>Puccinia porii</i>)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Cucurbits such as cucumbers, squash (all types), cantaloupes, muskmelons, watermelons, and other melons.	Powdery mildew (<i>Erysiphe</i> and <i>Sphaerotheca</i> spp.) Downy mildew (<i>Pseudoperonospora</i> spp.) Gummy stem blight (<i>Didymella bryoniae</i> and <i>Phoma cucurbitacearum</i>) See instructions below for "Soil application" against the following diseases: Vine decline (<i>Monosporascus cannonballus</i>) ** Charcoal rot (<i>Macrophomina phaseoli</i>) ** "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Fruiting vegetables such as tomatoes, peppers, eggplant, tomatillo, okra, and others.	Bacterial spot (<i>Xanthomonas</i> spp.)* ¹ Bacterial speck (<i>Pseudomonas syringae</i> pv. <i>tomato</i>)* ¹ Gray mold (<i>Botrytis cinerea</i>) Powdery mildew* (<i>Leveillula</i> , <i>Oidiopsis</i> , <i>Erysiphe</i> , and <i>Sphaerotheca</i> spp.) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Southern blight (<i>Sclerotium rolfsii</i>)* and **
Leafy vegetables such as head and leaf lettuce, celery, spinach, radicchio, arugula, watercress, and others (including leafy <i>Brassica</i> vegetables such as mustard and collard greens, kale,	Downy mildew (<i>Bremia lactucae</i> , <i>Peronospora</i> spp.)* Powdery mildew (<i>Golovinomyces</i> (<i>Erysiphe</i>) <i>cichoracearum</i>)* Bacterial blights Head and leaf drop (<i>Sclerotinia</i> spp.) ² Pink rot (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> spp.) See instructions below for "Soil application" against the following diseases:

bok choy, and related crops).	“Damping off,” seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Bottom rot (<i>Rhizoctonia solani</i>)
Legume vegetables succulent and dried beans and peas such as green, snap, shell, and Lima beans, garbanzo beans, chickpeas, soybeans, dry beans, peas, split peas, lentils, and other legumes.	White mold (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Microsphaera diffusa</i>) Rusts*, including <i>Uromyces appendiculatus</i> , <i>Puccinia</i> spp., and Asian soybean rust (<i>Phyospora pachyrhizi</i>) “Damping off,” seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for “Soil application”).
Root, tuber, and corm vegetables such as potato, sweet potato, carrot, cassava, beets, ginger, radish, horseradish ²² , ginseng, turnip, and other root, tuber and corm crops.	Black root/crown rot (<i>Alternaria</i> spp.) Bacterial leaf blight (<i>Xanthomonas campestris</i>) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Gray mold (<i>Botrytis</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Black leg /bacterial soft rot (<i>Erwinia carotovora</i>)** Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for “Soil application” against the following diseases: Black scurf (<i>Rhizoctonia solani</i>) Cavity spot (<i>Pythium</i> spp.) “Damping off,” seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Other vegetables such as sweet corn, popcorn, asparagus, peanut, and watercress	<i>Botrytis</i> spp. Rusts (<i>Puccinia</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> and <i>Cercosporidium</i> spp.)* “Damping off,” seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for “Soil application”).
Tree fruits and nuts	
Citrus such as orange, lemon, lime, grapefruit, tangerine (mandarin), tangelo, pummelo, and other citrus	<i>Alternaria</i> leaf spot (<i>Alternaria alternata</i>) Postbloom fruit drop (<i>Colletotrichum acutatum</i>)* Greasy spot (<i>Mycosphaerella citri</i>)* ³ Citrus canker (<i>Xanthomonas campestris</i> pv. <i>citri</i>) ¹ Scab (<i>Elsinoe fawcetti</i>)* ⁴ Melanose (<i>Diaporthe citri</i>)*
Pome fruits such as apple, pear, crabapple, quince, and others	Powdery mildew (<i>Podosphaera leucotricha</i>) ⁵ Scab (<i>Venturia</i> spp.)* Flayspeck (<i>Zygophiala jamaicensis</i>) ^{6**} Sooty blotch disease complex ^{6**} Brooks spot (<i>Mycosphaerella pomi</i>) ^{6**} Bot rot/white rot (<i>Botryosphaeria dothidea</i>) ^{6**} Bitter rot (<i>Colletotrichum</i> spp.) ⁶ Cedar apple rust (<i>Gymnosporangium juniperi-virginianae</i>) ^{6**} Fire blight (<i>Erwinia amylovora</i>)* ⁷
Stone fruits such as apricot, cherry, nectarine, peach, plum, prune, pluot, and others	Powdery mildew (<i>Sphaerotheca</i> and <i>Podosphaera</i> spp.) ⁸ Bacterial canker (<i>Pseudomonas</i> spp.) Brown rot blossom blight (<i>Monilinia laxa</i>) ⁹ Brown rot (<i>Monilinia fructicola</i>)* ¹⁰ Gray mold (<i>Botrytis cinerea</i>) ¹⁰ Peach leaf curl (<i>Taphrina deformans</i>) Bacterial leaf spot (<i>Xanthomonas arbuticola</i> pv. <i>pruni</i>) ¹ Rusty spot (<i>Podosphaera leucotricha</i>) ¹
Tree nuts such as almond, pistachio, pecan, walnut, filbert, hazelnut, chestnut,	Walnut blight (<i>Xanthomonas campestris</i>) ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>)* Bacterial canker (<i>Pseudomonas syringae</i>)

macadamia, and other tree nuts.	Shot hole (<i>Wilsonomyces carpophilus</i>)* Brown rot (<i>Monilinia</i> spp.)* Pecan scab (<i>Cladosporium caryigenum</i>)* ¹ and **
Pomegranates	Leaf and fruit spots (<i>Cercospora</i> , <i>Gloeosporium</i> and <i>Pestalotia</i> spp.) ¹ Fruit rots (<i>Alternaria</i> , <i>Botrytis</i> , and other spp.) ¹⁰ Powdery mildew (<i>Sphaerotheca pannosa</i>)
Other fruits	
Strawberry	Powdery mildew (<i>Sphaerotheca macularis</i> , <i>Erysiphe</i> spp.)* ¹² Gray mold (<i>Botrytis cinerea</i>)* ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>) Angular leaf spot (<i>Xanthomonas fragariae</i>) ¹ For the following diseases, see instructions below for "Soil application" (and also root dip instructions ²²): "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. Charcoal rot (<i>Macrophomina phaseolina</i>)**
Berries , including blueberry, blackberry, raspberry, loganberry, huckleberry, gooseberry, elderberry, cranberry (non-flooded fields), currant, and other berries	Mummy berry (<i>Monilinia vaccinii-corymbosi</i>)* Botrytis blight (<i>Botrytis cinerea</i>) Bacterial canker (<i>Pseudomonas</i> spp.) ¹³ Anthracnose fruit rot (<i>Colletotrichum acutatum</i>) ¹⁰
Grapes including wine grapes, table grapes, and raisins	Powdery mildew (<i>Erysiphe</i> (formerly <i>Uncinula</i>) <i>necator</i>) ¹⁴ Gray mold (<i>Botrytis cinerea</i>) ¹⁵ Sour rot complex ¹⁵ Downy mildew (<i>Plasmopara viticola</i>)* Phomopsis (<i>Phomopsis viticola</i>) ¹⁶ Eutypa (<i>Eutypa lata</i>) ¹⁷
Tropical fruits such as avocado ¹⁸ , mango ¹⁸ , papaya ¹⁹ , pineapple ¹⁹ , banana, plantain, and others.	Anthracnose (<i>Colletotrichum</i> spp.) Scab (<i>Sphaceloma perseae</i>) Bacterial canker (<i>Xanthomonas campestris</i>) Sigatoka (<i>Mycosphaerella fijiensis</i>) ²⁰
Other Crops	
Herbs and spices such as basil, thyme, coriander, dill, cilantro, parsley, mint, and others.	Powdery mildews (<i>Oidium</i> spp. and others) Downy mildews (<i>Peronospora</i> spp. and others)* Damping off diseases (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Alternaria</i> , and <i>Fusarium</i> spp.) Leaf spots (<i>Alternaria</i> , <i>Septoria</i> , <i>Colletotrichum</i> , and <i>Cercospora</i> spp.)* Bacterial diseases (<i>Erwinia</i> , <i>Xanthomonas</i> , and <i>Pseudomonas</i> spp.) Rusts (<i>Puccinia</i> spp. and others) "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Coffee	Coffee berry disease (<i>Colletotrichum coffeanum</i>) ¹ Coffee rust (<i>Hemileia vastatrix</i>) ^{1**} Anthracnose (<i>Colletotrichum</i> spp.) <i>Botrytis</i> flower blight <i>Cercospora</i> leaf spot** and berry blotch** "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tobacco	Angular leaf spot (<i>Pseudomonas</i> spp.) Anthracnose (<i>Colletotrichum</i> and <i>Glomerella</i> spp.) Blue mold or downy mildew (<i>Peronospora</i> spp.)* Brown spot (<i>Alternaria</i>) Barn spot/ frog-eye leaf spot (<i>Cercospora nicotianae</i>) ¹⁰ Collar rot (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Erysiphe cichoracearum</i>)

	<p>Target spot (<i>Rhizoctonia solani</i>) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i>, <i>Rhizoctonia</i>, <i>Fusarium</i>, <i>Olpidium</i>, <i>Phytophthora</i>, or <i>Verticillium</i>* spp. Charcoal rot (<i>Macrophomina phaseolina</i>) Black root rot (<i>Thielaviopsis basicola</i>) Black shank (<i>Phytophthora</i> spp.)* Southern blight/southern stem rot (<i>Sclerotium rolfsii</i>)*</p>
Mint	Rust (<i>Puccinia</i> spp.)
Hops	Powdery mildew (<i>Sphaerotheca macularis</i>) ²¹
<p>Footnotes:</p> <p>*Suppression only; for improved control mix or rotate with chemical fungicide approved for such use. ** NOT FOR USE IN CALIFORNIA</p> <p>¹ Tank mix or rotate with copper-based fungicides at label rates for improved control.</p> <p>² Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist.</p> <p>³ For greasy spot suppression, apply at first new foliar flush and repeat with each new flush. Tank mix with spray oil or copper based fungicide at labeled rates.</p> <p>⁴ For suppression of citrus scab, start applications at first new foliage flush and repeat at petal fall and when fruit are ½ inch in diameter.</p> <p>⁵ Make first application at or before tight cluster if conditions favor disease development. Repeat at 7-10 day intervals through the second cover spray or longer on susceptible varieties or if environmental conditions favor rapid disease development.</p> <p>⁶ Begin applications before bloom when environmental conditions favor disease development, repeating at 7 to 14 day intervals or as needed. Control may be enhanced by addition of a surfactant to improve spray coverage. Use only surfactants known to be safe for use on the crop and for which such use is allowed.</p> <p>⁷ Rotate with antibiotics registered for fire blight control for improved performance. Begin applications at 1-5% open blossoms and repeat every 3-7 days as necessary until petal fall, when intervals can be increased to 7 days. CX-9032 can also be used in summer "cover spray" applications to control the shoot blight phase of fire blight and summer diseases. Can be mixed with copper fungicides to improve control.</p> <p>⁸ Make first application at popcorn stage and repeat every 7 days.</p> <p>⁹ Start applying at early bloom stage and repeat every 7 days through petal fall.</p> <p>¹⁰ Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections.</p> <p>¹¹ Begin applications at or before pistillate bloom, repeating every 7-10 days. Apply before rainfall if possible, and tank mix or rotate with a copper-based bactericide registered for such use for improved control.</p> <p>¹² Start applications at or just before flowering and repeat every 7-10 days as needed through harvest.</p> <p>¹³ Apply before fall rains and again during dormancy before spring growth.</p> <p>¹⁴ Start applications when new shoots are ½ to 1½ inches long. Repeat at 3-5 inches, 8-10 inches, and then at 7-10 day intervals until disease conditions no longer exist.</p> <p>¹⁵ Apply at bloom, before bunch closure, at veraison, and before harvest.</p> <p>¹⁶ Apply when shoots are ½ to 1 inch long and again when 6-8 inches long.</p> <p>¹⁷ Mix 2 fluid ounces CX-9032 per gallon of water and apply to pruning wounds.</p> <p>¹⁸ Apply at budbreak and repeat on 14-21 day interval as needed through harvest.</p> <p>¹⁹ Apply at flowering and repeat on 14-21 day interval as needed through harvest.</p> <p>²⁰ Apply at first appearance of leaves and repeat at 7-21 day intervals as needed, in sufficient water to obtain thorough coverage of foliage. Tank mix with spray oil or other registered fungicides for improved control.</p> <p>²¹ Mix 6 to 10 fluid ounces CX-9032 per 100 gallons of water and apply in minimum of 20 gallons per acre from emergence to training, 50 gallons per acre from training to wire, and 100 gallons per acre from wire touch through harvest.</p> <p>²² For treatment of horseradish or strawberry roots immediately before transplanting: immerse bare roots (individually or in bunches) for 10 seconds in a suspension of 1 to 2 pints CX-9032 per gallon of water.</p>	

Foliar application: For control of diseases on foliage, flowers, fruit, or other above-ground parts of plants: Mix CX-9032 in water and apply as a spray at a rate of **0.5 to 6 quarts** of CX-9032 per acre in sufficient water to achieve thorough coverage of the crop canopy with minimal runoff. Begin applications at crop emergence, transplanting, or when conditions are conducive to development of disease. Repeat application every 3 to 10 days, or as needed, for as long as conditions favor disease development. Lower rates (0.5 to 3 quarts per acre) may be applied under light disease pressure, to smaller (e.g. newly-emerged) plants, or when CX-9032 is used in

a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (3-6 quarts/acre), apply more frequently (every 3-7 days), and mix or rotate CX-9032 with other fungicides for improved performance.

Soil application: For control of soilborne diseases infecting seeds, seedlings, roots, crown, stems, or other plant parts below ground or in contact with soil: Apply CX-9032 at **0.5 to 4.5 pints per acre**. Mix the required amount in sufficient water to apply by one of the following methods:

- Soil drench applied to transplants in flats or pots in the greenhouse or nursery any time prior to transplanting (see additional drench instructions under “Nurseries, greenhouses, shade houses, and ornamental plants” below).
- Soil drench at transplanting, using a “water wheel” injector, spray nozzles/hoses, or other method to drench each root ball and/or planting hole.
- Soil or seedline drench, or banded spray (in-furrow) at planting. See the section on “Banded (in-furrow) application” below for additional instructions.

Follow-up (post-planting) preventative applications can be made every 2-4 weeks by one or more of the following methods, if needed:

- Drip (trickle) or any type of sprinkler irrigation, any time after planting or transplanting. See Chemigation Instructions for additional information.
- Spray directly onto the soil surface and/or lower plant parts. If targeting root disease, follow immediately with sufficient overhead sprinkler irrigation to move CX-9032 to the root zone.
- Injection directly into the rooting zone using shanks or similar equipment.

Lower rates (0.5 to 2 pints of CX-9032 per acre) may be applied under light disease pressure, to smaller plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (2 - 4.5 pints per acre), apply more frequently (every 2 weeks), and mix or rotate CX-9032 with other fungicides for improved performance.

Banded (in-furrow) application: Use the table below (rate CX-9032 per acre) to determine the correct application rate in fluid ounces per 1,000 row feet based on row spacing and desired rate per acre. Mix the required amount of CX-9032 in water and apply as banded spray (4” to 6” wide) or seedline drench centered over the planting furrow. Apply directly over seeds in the furrow just before they are covered with soil. The volume of water required per acre or per 1,000 row feet will depend on the application equipment used. Consult your local cooperative extension service if you need assistance calibrating band spraying equipment.

Rates for banded (in-furrow) application: Find desired application rate of CX-9032 per acre in the left column. Read across that line to the correct row spacing indicated at the top to find the number of fluid ounces per 1,000 row feet that will provide the desired application rate per acre.

CX-9032 rate/acre		Space between rows (inches)														
Pints	fl oz	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
0.5	8	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
0.75	12	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
1.0	16	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2
1.25	20	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.5
1.5	24	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8
1.75	28	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
2.0	32	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2.25	36	0.8	1.0	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	2.3	2.5	2.6	2.8
2.5	40	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9	3.1
2.75	44	1.0	1.2	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2	3.4
3.0	48	1.1	1.3	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.5	3.7
3.25	52	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
3.5	56	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.3
3.75	60	1.4	1.6	1.8	2.1	2.3	2.5	2.8	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6
4.0	64	1.5	1.7	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
4.25	68	1.6	1.8	2.1	2.3	2.6	2.9	3.1	3.4	3.6	3.9	4.2	4.4	4.7	4.9	5.2
4.5	72	1.7	1.9	2.2	2.5	2.8	3.0	3.3	3.6	3.9	4.1	4.4	4.7	5.0	5.2	5.5

Nurseries, greenhouses, shadehouses, and ornamental plants

Spray application: Mix 0.5 to 6 quarts of CX-9032 per 100 gallons of water and apply as a foliar spray of sufficient volume to wet the entire plant with minimal runoff. Begin preventative applications at plant emergence and repeat every 3-28 days as needed (every 3-7 days if disease pressure is high or environmental conditions are highly favorable to disease outbreak, 10-28 days under low pressure or less conducive conditions).

Drench application: Mix 0.5 to 4.5 pints of CX-9032 per 100 gallons of water and apply as a drench or coarse spray to soil or other growing media in pots, flats, plugs, trays, or planting beds, for control or suppression of soilborne diseases of seedlings, cuttings, bedding plants, and transplants (including vegetables and other transplanted food crops). Make first application at or immediately before seeding, sticking, germination, or transplanting. Repeat applications every 14-28 days as needed. Transplants can be treated immediately before transplanting into field soils to protect against damping-off and other diseases that reduce plant establishment.

Cutting or root dip: Dip basal end of cuttings or bare roots (individually or in bunches) in a suspension of 1 to 2 pints of CX-9032 per gallon of water. Immerse for 5-10 seconds immediately before planting.

Chemigation: Mix 0.5 to 4.5 pints of CX-9032 per 100 gallons of water and apply via drip, handheld, or sprinkler irrigation systems. Refer to "Chemigation Instructions" for more details.

CROPS/USE SITES	DISEASES/PATHOGENS
Indoor, outdoor, and shade- or other cover-grown ornamental trees and shrubs, flowering plants, foliage plants, tropical plants, potted plants, potted or cut flowers, bedding plants, forestry seedlings, conifer production for reforestation, fruit trees, vegetables and other crops grown in greenhouses or nurseries.	<p>Powdery mildews caused by <i>Erysiphe</i>, <i>Podosphaera</i>, <i>Sphaerotheca</i>, <i>Oidium</i>, and <i>Golovinomyces</i> spp.</p> <p>Anthracnose (<i>Colletotrichum</i> spp.)</p> <p>Bacterial leaf spots caused by <i>Erwinia</i>, <i>Pseudomonas</i>, and <i>Xanthomonas</i> spp.</p> <p>Damping-off disease (<i>Rhizoctonia</i>, <i>Pythium</i>, <i>Fusarium</i> spp.)</p> <p>Late blight, blackeye, and root rots caused by <i>Phytophthora</i> spp.</p> <p>Gray mold and blight caused by <i>Botrytis cinerea</i></p> <p>Black root rot (<i>Aspergillus</i> spp.)</p> <p>Black spot of roses (<i>Diplocarpon rosae</i>)</p> <p>Downy mildew (<i>Peronospora</i> spp.)</p> <p>Leaf spots caused by <i>Alternaria</i>, <i>Septoria</i>, <i>Cercospora</i>, <i>Entomosporium</i>, <i>Helminthosporium</i>, and <i>Myrothecium</i> spp.)</p> <p>Rust (<i>Puccinia</i> spp.)</p> <p>Scab (<i>Venturia</i> spp.)</p> <p>Root rot, bottom rot, or stem rot caused by <i>Rhizoctonia solani</i></p> <p><i>Sclerotinia</i> blight</p> <p><i>Fusarium</i> wilts</p>

Turfgrass application

For control of foliar diseases, apply CX-9032 at **1 to 4 fluid ounces per 1,000 square feet** as a ground-directed spray in sufficient water to provide thorough coverage. To control root and crown diseases in or on the soil, immediately follow the spray with sufficient overhead sprinkler irrigation to move the product into the root zone.

USE SITES/CROPS	DISEASES/PATHOGENS
<p>Turf, sod, lawns, golf course (fairways, roughs, greens, tees), grass seed production</p> <p>Including but not limited to: Bluegrass, Bentgrass, Bermudagrass (common & hybrid), Dichondra, Fescue, Orchardgrass, <i>Poa annua</i>, St. Augustine grass, Ryegrass, <i>Zoysia</i>, mixtures, and other grasses or ornamental turf</p>	<p>Anthracnose (<i>Colletotrichum graminicola</i>)</p> <p>Brown patch (<i>Rhizoctonia solani</i>)</p> <p>Dollar spot (<i>Lanzia</i> and <i>Moellerodiscus</i> spp., formerly <i>Sclerotinia homeocarpa</i>)</p> <p>Powdery mildew (<i>Erysiphe graminis</i>)</p> <p>Rust (<i>Puccinia</i> spp.)</p> <p>Gray leaf spot (<i>Pyricularia grisea</i>)</p> <p>"Damping off" or seedling blights caused by <i>Pythium</i></p>

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep unprotected persons out of treated areas until sprays have dried.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of onsite or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container.

-for containers equal to or less than 5 gallons-

Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

-for containers greater than 5 gallons-

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container $\frac{1}{4}$ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Then offer for recycling, if available, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

CHEMIGATION INSTRUCTIONS

General information:

Apply this product only through drip (trickle) irrigation (including micro-irrigation through spaghetti tubes or individual tubes) or sprinkler irrigation (including impact or microsprinklers, microjet, overhead boom, water gun, solid set, lateral move, end tow, side-roll, center pivot, or hand move, including mist-type systems); or with hand-held calibrated irrigation equipment (such as a hand-held wand with injector). Do not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and injector system and flush with clean water before use. Failure to provide a clean tank, free of scale or residues may reduce effectiveness of this product.

Drip (trickle) and micro-irrigation chemigation

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.

Sprinkler chemigation:

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

WARRANTY

Certis USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purpose referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the disease problem, condition of the crop, incompatibility with other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage, or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

MASTER LABEL
SUBLABEL B: Residential Use

OMRI placeholder

CX-9032

Aqueous Suspension Biofungicide/Bactericide for control of plant diseases in home gardens: vegetables, ornamental and fruit trees, shrubs, lawns, flowers, bedding plants, and potted ornamental plants

FOR ORGANIC GARDENING

Active Ingredient:

Bacillus amyloliquefaciens strain D747*..... 98.85 %

Other Ingredients..... 1.15 %

Total..... 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS:

Lot No.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS (AND DOMESTIC ANIMALS): CAUTION:

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor. Hot Line No.:1-800-255-3924 for additional information

ENVIRONMENTAL HAZARDS:

To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Mixing instructions:

CX-9032 must be mixed with water and applied as a spray to fruit and foliage, or as a drench to plant roots. See below for specific mix rate information.

Application rates and methods:

Spray application for control of powdery mildews, leaf spots, anthracnose, gray mold, and other diseases affecting leaves, flowers, fruit, and other above-ground plant parts of home garden plants: Mix 1 teaspoon of CX-9032 per gallon of water and apply directly to plants using a hand pump sprayer or other suitable spray equipment. Spray just enough to wet all leaves and fruit with minimal run-off or dripping. Total coverage depends on the size of plants to be sprayed and the type of sprayer used. Repeat as needed to maintain disease control, typically every 7-10 days. If disease is prevalent or environmental conditions such as high humidity favor disease outbreak, increase the mixing rate to 1 tablespoon per gallon and shorten the interval between sprays to every 3-7 days.

Drench application for control of diseases affecting plant roots, tubers, or other parts of plants in contact with soil in the home garden: Mix 1 teaspoon of CX-9032 per gallon of water and apply to the soil by one of the following methods:

1. For potted plants (indoors or outdoors), apply in sufficient water to wet the entire root mass using a watering can or tank-fed watering wand. Do not water plants again until 24 hours after application. Alternatively, use a hand-pump or other sprayer to spray the mixture on the soil surface in each pot, then immediately apply sufficient water to move the product into the roots.

2. Drench the roots of transplants with approx. 4 fluid ounces of the mixture immediately before transplanting into pots or garden soil. Allow to soak into the root ball before transplanting.
3. For outdoor-grown plants, use a watering can or sprayer to drench the soil in the planting furrow or transplant hole immediately before planting or transplanting. The amount of water required will depend on the size of the hole or length of furrow.
4. Alternatively, apply in the first watering after planting or transplanting, either by mixing directly into the water at the rate indicated above, or by spraying onto the soil surface at the base of each plant and immediately watering in with a watering can, hose, sprinkler, or other watering device.

CX-9032 can be applied up to and including the day of harvest.

For application to lawns and other grass areas: Mix 1 teaspoon of CX-9032 per gallon of water and apply as a fine spray to the surface of the lawn or grass area. Total amount of mix required will depend on the type of sprayer used and area to be covered, but typically 2 to 5 gallons of spray mix may be required per 1,000 square feet of lawn. CX-9032 can be "watered in" for control of soilborne root and crown diseases by thorough watering immediately after application either with sprinklers or by spraying just before or during light rain.

STORAGE AND DISPOSAL

PESTICIDE STORAGE:

Keep in original container. Store away from direct sunlight, feed, or foodstuffs. Keep container tightly sealed when not in use.

PESTICIDE DISPOSAL AND CONTAINER HANDLING

Non-refillable container. Do not reuse or refill container.

If empty:

Place in trash or offer for recycling, if available.

If partly filled:

Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY

Certis USA L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the insect problem, condition of the crop, incompatibility with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.



United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☐ Amendment
☒ Other

Application for Pesticide - Section I

1. Company/Product Number 70051-107	2. EPA Product Manager S. Reilly, Ph.D.	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) CX-9032 (Double Nickel LC)	PM# MPB	
5. Name and Address of Applicant (Include ZIP Code) Certs U.S.A.L.L.C. 9145 Guilford Road, Suite 175 Columbia, Maryland 21046 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: <input checked="" type="checkbox"/> EPA Reg. No. _____ Product Name _____	

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Additional Container Handling Statements to address containers larger than 5 gallons. No other changes have been made to the label as stamped by EPA.

Section - III

1. Material This Product Will Be Packaged In:			
Child-Resistant Packaging <input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2. Type of Container <input checked="" type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____
* Certification must be submitted		If "Yes" Unit Packaging wgt. No. per container	If "Yes" Package wgt. No. per container
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 2.5, 250 gal.	
5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product		6. Manner in Which Label is Affixed to Product <input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled <input type="checkbox"/> Other _____	

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name Christine A. Dively		Title Director of Reg. Affairs	
		Telephone No. (Include Area Code) 301-483-3806	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.			6. Date Application Received (Stamped)
2. Signature <i>Christine A. Dively</i>		3. Title Director of Reg. Affairs	
4. Typed Name Christine A. Dively		5. Date Dec. 12, 2012	

Notification Accepted

APR 26 2013

Date:

Reviewer: *S. Reilly*

NOTIFICATION STATEMENT

CX-9032 (EPA Registration Number 70051-107) - Notification of Addition of Container Handling Statements to the label.

“This notification is consistent with the provisions of PR Notice 98-10 and EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA.”



December 12, 2012

RECEIPT

Mail Enclosure: EPA Form 8570 (product: Double Nickel LC; EPA Reg. No. 70051-107) NOTIFICATION TO ADD CONTAINER HANDLING STATEMENTS FOR LARGE CONTAINER SIZES

Address:

Document Processing Desk
Office of Pesticide Programs (7508P)
U.S. Environmental Protection Agency
Room S-4900 One Potomac Yard
2777 South Crystal Drive
Arlington, VA 22202-4501

Attention: Dr. Sheryl Reilly
BPPD/Microbial Pesticides Branch

Mail Enclosures Received by:

Carrie Devane
Signature

12/13/12 1:35
Date and Time



Hand-Delivered

December 12, ew2012

Sheryl Reilly, Ph.D., Acting Chief
Microbial Pesticides Branch
Biopesticides & Pollution Prevention Division (7504P)
Office of Pesticide Programs
US Environmental Protection Agency

Re: Certis U.S.A., L.L.C.
Addition of Container Handling Statements per PR Notice 2007-4
CX-9032; EPA Registration Number 70051-107

Dear Dr. Reilly;

On behalf of Certis U.S.A. L.L.C., (9145 Guilford Road, Suite 175, Columbia, Maryland 21046), I respectfully submit a *Notification for CX-9032*, to provide additional container handling statements for pesticide container sizes that are greater than 5 gallons. These Statements are consistent with appropriate text as indicated in PR Notice 2007-4. Therefore the submission qualifies as a *Notification* per PR Notice 98-10. No other changes have been made to the EPA stamped label, dated December 16, 2011.

Please do not hesitate to contact me if you have any questions about this submission. I can be reached by telephone at 301-483-3806 or by email at cdively@certisusa.com.

Sincerely,

Christine A. Dively
Director of Regulatory Affairs
Certis USA

enclosure

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of onsite or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container.

-for containers equal to or less than 5 gallons-

Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

-for containers greater than 5 gallons-

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container $\frac{1}{4}$ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Then offer for recycling, if available, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Cerrelli, Susanne

From: Dively, Chris [cdively@certisusa.com]
Sent: Monday, March 04, 2013 5:24 PM
To: Cerrelli, Susanne
Cc: Dively, Chris
Attachments: cx-9032 022013 no mushroom- container handlingGREATER5GALHOMEOWNER.CD.docx

Hi Susanne,

I am attaching the final draft label for DN LC with the added container handling text in the homeowner sublabel to accomdate tote packaging. This is in reference to our previous discussions and response from the labeling committee.

I hope that we are finishing up this amendment end of this month?

Thanks and Kind Regards,

Chris

Cerrelli, Susanne

From: Dively, Chris [cdively@certisusa.com]
Sent: Thursday, February 07, 2013 2:57 PM
To: Cerrelli, Susanne
Cc: Dively, Chris
Subject: RE: Another question for label group - concerning repackaging -and labels

Susanne,

Further to this question which was sent on Jan. 31, we have discussed with CADPR and the conclusion is that we will submit a Notification to you to add both container handling statements to labels that have both container sizes equal to and above 5 gallons. This will cover both a 1 quart or 1 gaLLon repackaged container and also the tote size for transporting the tote from our manufacturing facility in CA to our customer (repackager and sub-registrant) within the State of CA.

I believe this is correct approach. In this way both container sizes are covered.
I can still forward the question to the label consistency website if needed.

Thanks for your help.
Chris

From: Cerrelli.Susanne@epamail.epa.gov [mailto:Cerrelli.Susanne@epamail.epa.gov]
Sent: Thursday, February 07, 2013 2:48 PM
To: Dively, Chris
Subject: Fw: Another question for label group - concerning repackaging -and labels

Please submit this question through the label consistency website so that it can be captured with a reference number ,

Regards,

Susanne Cerrelli

Regulatory Action Leader
Microbial Pesticides Branch
Biopesticides Pollution Prevention Division (7511P)

703-308-8077(w)

----- Forwarded by Susanne Cerrelli/DC/USEPA/US on 02/07/2013 02:43 PM -----

From: Menyon Adams/DC/USEPA/US
To: Susanne Cerrelli/DC/USEPA/US@EPA
Cc: Robert Forrest/DC/USEPA/US@EPA
Date: 02/07/2013 02:43 PM
Subject: Re: Fw: Another question for label group - concerning repackaging -and labels

▼ Susanne Cerrelli---02/07/2013 02:40:42 PM---Chris Dively requested that I check with the OPP label consistency group. If a company is making a p

From: Susanne Cerrelli/DC/USEPA/US
To: Menyon Adams/DC/USEPA/US@EPA
Cc: Robert Forrest/DC/USEPA/US@EPA
Date: 02/07/2013 02:40 PM
Subject: Fw: Another question for label group - concerning repackaging -and labels

Cerrelli, Susanne

From: Cerrelli, Susanne
Sent: Monday, January 28, 2013 5:39 PM
To: Dively, Chris
Subject: Clarification about mushroom use and mixing equipment

Chris-

Could you please clarify what kind of machinery is used for mixing CX9030 for the mushroom spawn grains and growing supplements? What kind of mushrooms can be treated? (Are there only specific kinds of mushrooms that the product works on? or is it not specific?)

Mushrooms spawn grains: Mix **2 to 3 pounds of CX-9030** with 80 – 100 pounds of gypsum, limestone, or chalk. Coat approximately 1,600 units of spawn grains using this mixture before mixing the spawn into the mushroom growing substrate. Apply treated spawn to approx. 8,000 square feet of bed surface at spawning.

Mushroom growing supplement: Mix **2 to 3 pounds of CX-9030** with 80 – 100 pounds of gypsum, limestone, or chalk. Coat approximately 2,000 pounds of supplement using this mixture before mixing the supplement into the mushroom growing substrate. Apply treated supplement to approx. 8,000 square feet of bed surface at spawning.

Regards,

Susanne Cerrelli

Regulatory Action Leader
Microbial Pesticides Branch
Biopesticides Pollution Prevention Division (7511P)

703-308-8077(w)



Certis USA
9145 Guilford Road
Suite 175
Columbia, MD 21046
(301) 604-7340
Fax: 301-604-7015
www.certisusa.com

January 16, 2013

Biopesticides and Pollution Prevention Division (BPPD)
Office of Pesticide Programs (7504P)
U.S. Environmental Protection Agency
Room S-4900, One Potomac Yard
2777 South Crystal Drive
Arlington, VA 22202-4501

**Re: Certis USA L.L.C.
Submission of Final Printed Labeling for Registered Pesticide Products**

On behalf of Certis USA, L.L.C., 9145 Guilford Road Suite 175 Columbia, MD 21046, I am respectfully submitting an 8570-1 Form and three copies of the final printed labels for each of the following registered pesticide products:

- Deliver (EPA Registration No. 70051-69)
- Double Nickel LC (CX-9032) (EPA Registration No. 70051-107)
- Double Nickel 55 (CX-9030) (EPA Registration No. 70051-108)
- CYD-X HP (CYD-X Plus) (EPA Registration No. 70051-112)

Please note that copies of OMRI certificates are included, when not previously submitted to the Agency.

Please do not hesitate to contact me if you have any questions about this submission. I can be reached by telephone at 301-483-3806 or by email at cdively@certisusa.com.

Sincerely,

Susan Gallagher for:

Christine A. Dively
Directory of Regulatory Affairs
Certis U.S.A. L.L.C.



United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☐ Amendment
☒ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 70051-107	2. EPA Product Manager Sheryl Reilly	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) CX-9032	PM# Microbial Pesticides Branch	
5. Name and Address of Applicant (Include ZIP Code) Certis U.S.A. L.L.C. 9145 Guilford Rd. Suite 175, Columbia MD 21046 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input checked="" type="checkbox"/> Final printed labels in response to Agency letter dated Nov. 30, 2012
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of three copies of final printed label in response to EPA Stamped Accepted Notification dated Nov. 30, 2013

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal	
* Certification must be submitted				<input type="checkbox"/> Plastic	
If "Yes" Unit Packaging wgt. No. per container		If "Yes" Package wgt. No. per container		<input type="checkbox"/> Glass	
				<input type="checkbox"/> Paper	
				<input type="checkbox"/> Other (Specify) _____	
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 2.5 G		5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed to Product <input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled				<input type="checkbox"/> Other _____	

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Christine A. Dively	Title Director of Reg. Affairs	Telephone No. (Include Area Code) 301-483-3806
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped)
2. Signature <i>Christine A. Dively</i>	3. Title Director of Regulatory Affairs	
4. Typed Name Christine A. Dively	5. Date Jan 3, 2013	



OMRI Listed®

The following product is OMRI Listed. It may be used in certified organic production or food processing and handling according to the USDA National Organic Program Rule.

Product
Double Nickel LC Biofungicide

Company
Certis USA
Ms. Christine Divelu
9145 Guilford Rd, Suite 175
Columbia, MD 21046-1952

Status
Allowed with Restrictions

Category
Microbial Pesticides

Issue Date
10-May-12

Product number
ttc-2981

Class
Crop Pest, Weed, and Disease Control

Expiration Date
01-Dec-2013

Restrictions

May be used for pesticidal purposes only if the requirements of 205.206(e) are met, which requires the use of preventative, mechanical, physical, and other pest, weed, and disease management practices.


Executive Director

Product review is conducted according to the policies in the current OMRI Policy Manual and based on the standards in the current OMRI Standards Manual. To verify the current status of this or any OMRI Listed product, view the most current version of the OMRI Products List at www.omri.org. OMRI listing is not equivalent to organic certification and is not a product endorsement. It cannot be construed as such. Final decisions on the acceptability of a product for use in a certified organic system are the responsibility of a USDA accredited certification agent. It is the operator's responsibility to properly use the product, including following any restrictions.



Organic Materials Review Institute
P.O. Box 11558, Eugene, OR 97440-3758, USA
541.343.7600 • fax 541.343.8971 • info@omri.org • www.omri.org

tm3 H11/3 3 30 2012 11021428

DoubleNickel™ LC

BIOFUNGICIDE

Aqueous Suspension Biofungicide/Bactericide

FOR ORGANIC PRODUCTION

ACTIVE INGREDIENT:

Bacillus amyloliquefaciens strain D747*

98.85%

OTHER INGREDIENTS:

1.15%

TOTAL

100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter



Complies with
EPA Accepted Labeling

MAY -8 2013

Date:

Reviewer: *Selene*

Net Contents: 2.5 Gallons
EPA Reg. No. 70051-107
EPA Est. No. 70051-CA-001

Lot No:

Manufactured by
Certis USA, L.L.C.
9145 Guilford Road
Suite 175
Columbia, MD 21046

CERTIS

**KEEP OUT OF REACH OF CHILDREN
CAUTION**

See Inside Panels for Additional Precautionary Statements

FIRST AID

If on skin: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If in eyes: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product label with you when calling a poison control center or doctor. Hot Line No.: 1-800-255-3924 for additional information

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS CAUTION

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco and using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow manufacturer's instructions for cleaning and maintaining PPE. If no instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides, the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticides get inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For Terrestrial Uses: Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

GENERAL INFORMATION

Double Nickel™ LC is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of Double Nickel™ LC is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. Double Nickel™ LC also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

Double Nickel™ LC can be applied alone or in combination and/or rotation with chemical fungicides as a tool for integrated disease management in agricultural crops, ornamental and nursery plants, and turfgrass. Double Nickel™ LC offers a valuable tool for management of resistance to chemical fungicides through its multiple and unique modes of action.

Double Nickel™ LC can be applied up to and including the day of harvest.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is: coveralls, waterproof gloves, shoes plus socks.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

MIXING AND HANDLING INSTRUCTIONS

Mix the required amount of Double Nickel™ LC in water with sufficient agitation to maintain a uniform suspension in the spray or mixing tank. Tank should be cleaned prior to use. Do not use highly alkaline or highly acidic water to mix sprays. Use a buffering agent if necessary to maintain neutrality (pH 6 to 8) of water in the tank. Maintain agitation during application. Apply immediately after mixing; do not allow spray mix to stand overnight.

Double Nickel™ LC can be mixed and used with other agricultural chemicals for which such mixing is permitted by the product labels, in accordance with the most

restrictive of those label limitations and precautions. If such a mixture is planned, a compatibility "jar test" should first be conducted by mixing the correct proportions of Double Nickel™ LC and these products in a small volume of water.

APPLICATION METHODS

Ground: Double Nickel™ LC can be applied in most commonly-used ground application equipment, such as (but not limited to): tractor-mounted boom, airblast, high clearance, hose-end, backpack, and other pressurized sprayers; hose-end or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method.

Aerial: Double Nickel™ LC can be applied by fixed or rotary winged aircraft in a minimum of 3 gallons of water per acre. Standard precautions should be taken to minimize spray drift.

Chemigation: Double Nickel™ LC can be applied through drip (trickle) and sprinkler type irrigation equipment. Refer to the section entitled "Chemigation Instructions" for detailed instructions.

Agricultural crops

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Vegetables and melons	
Brassica vegetables such as broccoli, cabbage, cauliflower, Brussels sprouts, kohlrabi, and other cole crops.	Pin rot complex (<i>Alternaria/Xanthomonas</i>)* Leaf spots (<i>Alternaria</i> spp., <i>Xanthomonas</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe polygoni</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Bulb vegetables such as onions, garlic, shallots, and others.	<i>Botrytis</i> spp. (neck rot, leaf blight) Purple blotch (<i>Alternaria</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Rust (<i>Puccinia porii</i>)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Cucurbits such as cucumbers, squash (all types), cantaloupes, muskmelons, watermelons, and other melons.	Powdery mildew (<i>Erysiphe</i> and <i>Sphaerotheca</i> spp.) Downy mildew (<i>Pseudoperonospora</i> spp.) Gummy stem blight (<i>Didymella bryoniae</i> and <i>Phoma cucurbitacearum</i>) See instructions below for "Soil application" against the following diseases: Vine decline (<i>Monosporascus cannonballus</i>)** Charcoal rot (<i>Macrophomina phaseoli</i>)** "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Fruiting vegetables such as tomatoes, peppers, eggplant, tomatillo, okra, and others.	Bacterial spot (<i>Xanthomonas</i> spp.)* ¹ Bacterial speck (<i>Pseudomonas syringae</i> pv. <i>tomato</i>)* ¹ Gray mold (<i>Botrytis cinerea</i>) Powdery mildew* (<i>Leveillula</i> , <i>Oidium</i> spp., <i>Erysiphe</i> , and <i>Sphaerotheca</i> spp.) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Southern blight (<i>Sclerotium rolfsii</i>)* and **
Leafy vegetables such as head and leaf lettuce, celery, spinach, radicchio, arugula, watercress, and others (including leafy Brassica vegetables such as mustard and collard greens, kale, bok choy, and related crops).	Downy mildew (<i>Bremia lactucae</i> , <i>Peronospora</i> spp.)* Powdery mildew (<i>Golovinomyces</i> (<i>Erysiphe</i>) <i>cichoracearum</i>)* Bacterial blights Head and leaf drop (<i>Sclerotinia</i> spp.)* ² Pink rot (<i>Sclerotinia sclerotiorum</i>)* ² Leaf spots (<i>Cercospora</i> spp.) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Bottom rot (<i>Rhizoctonia solani</i>)

(continued)

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Vegetables and melons (continued)	
Legume vegetables succulent and dried beans and peas such as green, snap, shell, and Lima beans, garbanzo beans, chickpeas, soybeans, dry beans, peas, split peas, lentils, and other legumes.	White mold (<i>Sclerotinia sclerotiorum</i>)* ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Microsphaera diffusa</i>) Rusts*, including <i>Uromyces appendiculatus</i> , <i>Puccinia</i> spp., and Asian soybean rust (<i>Phytophthora pachyrhizi</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Root, tuber, and corn vegetables such as potato, sweet potato, carrot, cassava, beets, ginger, radish, horseradish ²² , ginseng, turnip, and other root, tuber and corn crops.	Black root/crown rot (<i>Alternaria</i> spp.) Bacterial leaf blight (<i>Xanthomonas campestris</i>) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Gray mold (<i>Botrytis</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>)* ² Black leg/bacterial soft rot (<i>Erwinia carotovora</i>)* ² Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: Black scurf (<i>Rhizoctonia solani</i>) Cavity spot (<i>Pythium</i> spp.) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Other vegetables such as sweet corn, popcorn, asparagus, peanut, and watercress	<i>Botrytis</i> spp. Rusts (<i>Puccinia</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>)* ² Leaf spots (<i>Cercospora</i> and <i>Cercosporidium</i> spp.)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tree fruits and nuts	
Citrus such as orange, lemon, lime, grapefruit, tangerine (mandarin), tangelo, pummelo, and other citrus	<i>Alternaria</i> leaf spot (<i>Alternaria alternata</i>) Postbloom fruit drop (<i>Colletotrichum acutatum</i>)* Greasy spot (<i>Mycosphaerella citri</i>)* ³ Citrus canker (<i>Xanthomonas campestris</i> pv. <i>citri</i>)* ¹ Scab (<i>Elsinoe fawcettii</i>)* ⁴ Melanose (<i>Diaporthe citri</i>)*
Pome fruits such as apple, pear, crabapple, quince, and others	Powdery mildew (<i>Podosphaera leucotricha</i>)* ⁵ Scab (<i>Venturia</i> spp.)* Fyspeck (<i>Zygophiala jamaicensis</i>)* ⁶ Sooty blotch disease complex ⁶ Brooks spot (<i>Mycosphaerella pomii</i>)* ⁶ Bot rot/white rot (<i>Botryosphaeria dothidea</i>)* ⁶ Blister rot (<i>Colletotrichum</i> spp.)* ⁸ Cedar apple rust (<i>Gymnosporangium juniperi-virginianae</i>)* ⁶ Fire blight (<i>Erwinia amylovora</i>)* ⁷
Stone fruits such as apricot, cherry, nectarine, peach, plum, prune, pluot, and others	Powdery mildew (<i>Sphaerotheca</i> and <i>Podosphaera</i> spp.)* Bacterial canker (<i>Pseudomonas</i> spp.)* Brown rot blossom blight (<i>Monilinia laxa</i>)* Brown rot (<i>Monilinia fructicola</i>)* ¹⁰ Gray mold (<i>Botrytis cinerea</i>)* ¹⁰ Peach leaf curl (<i>Taphrina deformans</i>) Bacterial leaf spot (<i>Xanthomonas aspicillata</i> pv. <i>pruni</i>)* ¹ Rusty spot (<i>Podosphaera leucotricha</i>)* ¹
Tree nuts such as almond, pistachio, pecan, walnut, filbert, hazelnut, chestnut, macadamia, and other tree nuts.	Walnut blight (<i>Xanthomonas campestris</i>)* ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>)* Bacterial canker (<i>Pseudomonas syringae</i>) Shot hole (<i>Wilsonomyces carpophilus</i>)* Brown rot (<i>Monilinia</i> spp.)* ¹ Pecan scab (<i>Cladosporium caryigenum</i>)* ¹ and **
Pomegranates	Leaf and fruit spots (<i>Cercospora</i> , <i>Gloeosporium</i> and <i>Pestalotia</i> spp.)* ¹ Fruit rots (<i>Alternaria</i> , <i>Botrytis</i> , and other spp.)* ¹⁰ Powdery mildew (<i>Sphaerotheca pannosa</i>)

(continued)

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Other fruits	
Strawberry	Powdery mildew (<i>Sphaerotheca macularis</i> , <i>Erysiphe</i> spp.) ¹² Gray mold (<i>Botrytis cinerea</i>) ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>) Angular leaf spot (<i>Xanthomonas fragariae</i>) ¹ For the following diseases, see instructions below for "Soil application" (and also root dip instructions ²²): "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> spp. Charcoal rot (<i>Macrophomina phaseolina</i>) ²²
Berries , including blueberry, blackberry, raspberry, loganberry, huckleberry, gooseberry, elderberry, cranberry (non-flooded fields), currant, and other berries	Mummy berry (<i>Monilinia vaccinii-corymbosi</i>) ⁸ Botrytis blight (<i>Botrytis cinerea</i>) Bacterial canker (<i>Pseudomonas</i> spp.) ¹³ Anthracnose fruit rot (<i>Colletotrichum acutatum</i>) ¹⁰
Grapes including wine grapes, table grapes, and raisins	Powdery mildew (<i>Erysiphe</i> (formerly <i>Uncinula</i>) <i>necator</i>) ¹⁴ Gray mold (<i>Botrytis cinerea</i>) ¹⁵ Sour rot complex ¹⁵ Downy mildew (<i>Plasmopara viticola</i>) ¹⁶ Phomopsis (<i>Phomopsis viticola</i>) ¹⁶ Eutypa (<i>Eutypa lata</i>) ¹⁷
Tropical fruits such as avocado ¹⁸ , mango ¹⁸ , papaya ¹⁹ , pineapple ¹⁹ , banana, plantain, and others.	Anthracnose (<i>Colletotrichum</i> spp.) Scab (<i>Sphaceloma persea</i>) Bacterial canker (<i>Xanthomonas campestris</i>) Sigatoka (<i>Mycosphaerella filijensis</i>) ²⁰
Other Crops	
Herbs and spices such as basil, thyme, coriander, dill, cilantro, parsley, mint, and others.	Powdery mildews (<i>Oidium</i> spp. and others) Downy mildews (<i>Peronospora</i> spp. and others) ² Damping off diseases (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Alternaria</i> , and <i>Fusarium</i> spp.) Leaf spots (<i>Alternaria</i> , <i>Septoria</i> , <i>Colletotrichum</i> , and <i>Cercospora</i> spp.) ² Bacterial diseases (<i>Erwinia</i> , <i>Xanthomonas</i> , and <i>Pseudomonas</i> spp.) Rusts (<i>Puccinia</i> spp. and others) "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> spp. (see instructions below for "Soil application").
Coffee	Coffee berry disease (<i>Colletotrichum coffeanum</i>) ¹ Coffee rust (<i>Hemileia vastatrix</i>) ^{1**} Anthracnose (<i>Colletotrichum</i> spp.) Botrytis flower blight Cercospora leaf spot ²² and berry blotch ²² "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> spp. (see instructions below for "Soil application").
Tobacco	Angular leaf spot (<i>Pseudomonas</i> spp.) Anthracnose (<i>Colletotrichum</i> and <i>Glomerella</i> spp.) Blue mold or downy mildew (<i>Peronospora</i> spp.) ² Brown spot (<i>Alternaria</i>) Barn spot/ frog-eye leaf spot (<i>Cercospora nicotianae</i>) ¹⁰ Collar rot (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Erysiphe cichoracearum</i>) Target spot (<i>Rhizoctonia solani</i>) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Oidium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> spp. Charcoal rot (<i>Macrophomina phaseolina</i>) Black root rot (<i>Thielaviopsis basicola</i>) Black shank (<i>Phytophthora</i> spp.) ² Southern blight/southern stem rot (<i>Sclerotium rolfsii</i>) ²

(continued)

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Other Crops	
Mint	Rust (<i>Puccinia</i> spp.)
Hops	Powdery mildew (<i>Sphaerotheca macularis</i>) ²¹
Footnotes: *Suppression only; for improved control mix or rotate with chemical fungicide approved for such use. ** NOT FOR USE IN CALIFORNIA 1 Tank mix or rotate with copper-based fungicides at label rates for improved control. 2 Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist. 3 For greasy spot suppression, apply at first new foliar flush and repeat with each new flush. Tank mix with spray oil or copper based fungicide at labeled rates. 4 For suppression of citrus scab, start applications at first new foliage flush and repeat at petal fall and when fruit are 1/2 inch in diameter. 5 Make first application at or before tight cluster if conditions favor disease development. Repeat at 7-10 day intervals through the second cover spray or longer on susceptible varieties or if environmental conditions favor rapid disease development. 6 Begin applications before bloom when environmental conditions favor disease development, repeating at 7 to 14 day intervals or as needed. Control may be enhanced by addition of a surfactant to improve spray coverage. Use only surfactants known to be safe for use on the crop and for which such use is allowed. 7 Rotate with antibiotics registered for fire blight control for improved performance. Begin applications at 1-5% open blossoms and repeat every 3-7 days as necessary until petal fall, when intervals can be increased to 7 days. Double Nickel™ LC can also be used in summer "cover spray" applications to control the shoot blight phase of fire blight and summer diseases. Can be mixed with copper fungicides to improve control. 8 Make first application at popcorn stage and repeat every 7 days. 9 Start applying at early bloom stage and repeat every 7 days through petal fall. 10 Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections. 11 Begin applications at or before pistillate bloom, repeating every 7-10 days. Apply before rainfall if possible, and tank mix or rotate with a copper-based bactericide registered for such use for improved control. 12 Start applications at or just before flowering and repeat every 7-10 days as needed through harvest. 13 Apply before fall rains and again during dormancy before spring growth. 14 Start applications when new shoots are 1/2 to 1 1/2 inches long. Repeat at 3-5 inches, 8-10 inches, and then at 7-10 day intervals until disease conditions no longer exist. 15 Apply at bloom, before bunch closure, at veraison, and before harvest. 16 Apply when shoots are 1/2 to 1 inch long and again when 6-8 inches long. 17 Mix 2 fluid ounces Double Nickel™ LC per gallon of water and apply to pruning wounds. 18 Apply at budbreak and repeat on 14-21 day interval as needed through harvest. 19 Apply at flowering and repeat on 14-21 day interval as needed through harvest. 20 Apply at first appearance of leaves and repeat at 7-21 day intervals as needed, in sufficient water to obtain thorough coverage of foliage. Tank mix with spray oil or other registered fungicides for improved control. 21 Mix 6 to 10 fluid ounces Double Nickel™ LC per 100 gallons of water and apply in minimum of 20 gallons per acre from emergence to training, 50 gallons per acre from training to wire, and 100 gallons per acre from wire touch through harvest. 22 For treatment of horseradish or strawberry roots immediately before transplanting: immerse bare roots (individually or in bunches) for 10 seconds in a suspension of 1 to 2 pints Double Nickel™ LC per gallon of water.	

Foliar application: For control of diseases on foliage, flowers, fruit, or other above-ground parts of plants: Mix Double Nickel™ LC in water and apply as a spray at a rate of 0.5 to 6 quarts of Double Nickel™ LC per acre in sufficient water to achieve thorough coverage of the crop canopy with minimal runoff. Begin applications at crop emergence, transplanting, or when conditions are conducive to development of disease. Repeat application every 3 to 10 days, or as needed, for as long as conditions favor disease development. Lower rates (0.5 to 6 quarts per acre) may be applied under light disease pressure, to smaller (e.g. newly-emerged) plants, or when Double Nickel™ LC is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (3-6 quarts/acre), apply more frequently (every 3-7 days), and mix or rotate Double Nickel™ LC with other fungicides for improved performance.

Soil application: For control of soilborne diseases infecting seeds, seedlings, roots, crown, stems, or other plant parts below ground or in contact with soil: Apply Double Nickel™ LC at 0.5 to 4.5 pints per acre. Mix the required amount in sufficient water to apply by one of the following methods:

- Soil drench applied to transplants in flats or pots in the greenhouse or nursery any time prior to transplanting (see additional drench instructions under "Nurseries, greenhouses, shade houses, and ornamental plants" below).
- Soil drench at transplanting, using a "water wheel" injector, spray nozzles/hoses, or other method to drench each root ball and/or planting hole.
- Soil or seedline drench, or banded spray (in-furrow) at planting. See the section on "Banded (in-furrow) application" below for additional instructions.

Follow-up (post-planting) preventative applications can be made every 2-4 weeks by one or more of the following methods, if needed:

- Drip (trickle) or any type of sprinkler irrigation, any time after planting or transplanting. See Chemigation Instructions for additional information.
- Spray directly onto the soil surface and/or lower plant parts. If targeting root disease, follow immediately with sufficient overhead sprinkler irrigation to move Double Nickel™ LC to the root zone.
- Injection directly into the rooting zone using shanks or similar equipment.

Lower rates (0.5 to 2 pints of Double Nickel™ LC per acre) may be applied under light disease pressure, to smaller plants, or when Double Nickel™ LC is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to

rapid disease development, use higher label rates (2 - 4.5 pints per acre), apply more frequently (every 2 weeks), and mix or rotate Double Nickel™ LC with other fungicides for improved performance.

Banded (in-furrow) application: Use the table below (rate Double Nickel™ LC per acre) to determine the correct application rate in fluid ounces per 1,000 row feet based on row spacing and desired rate per acre. Mix the required amount of Double Nickel™ LC in water and apply as banded spray (4" to 6" wide) or seedline drench centered over the planting furrow. Apply directly over seeds in the furrow just before they are covered with soil. The volume of water required per acre or per 1,000 row feet will depend on the application equipment used. Consult your local cooperative extension service if you need assistance calibrating band spraying equipment.

Rates for banded (in-furrow) application: Find desired application rate of Double Nickel™ LC per acre in the left column. Read across that line to the correct row spacing indicated at the top to find the number of fluid ounces per 1,000 row feet that will provide the desired application rate per acre.

Double Nickel™ LC rate/acre		Space between rows (inches)														
Pints	fl oz	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
0.5	8	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
0.75	12	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
1.0	16	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2
1.25	20	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.5
1.5	24	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8
1.75	28	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
2.0	32	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2.25	36	0.8	1.0	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	2.3	2.5	2.6	2.8
2.5	40	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9	3.1
2.75	44	1.0	1.2	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2	3.4
3.0	48	1.1	1.3	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.5	3.7
3.25	52	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
3.5	56	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.3
3.75	60	1.4	1.6	1.8	2.1	2.3	2.5	2.8	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6
4.0	64	1.5	1.7	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
4.25	68	1.6	1.8	2.1	2.3	2.6	2.9	3.1	3.4	3.6	3.9	4.2	4.4	4.7	4.9	5.2
4.5	72	1.7	1.9	2.2	2.5	2.8	3.0	3.3	3.6	3.9	4.1	4.4	4.7	5.0	5.2	5.5

Nurseries, greenhouses, shadehouses, and ornamental plants

Spray application: Mix 0.5 to 6 quarts of Double Nickel™ LC per 100 gallons of water and apply as a foliar spray of sufficient volume to wet the entire plant with minimal runoff. Begin preventative applications at plant emergence and repeat every 3-28 days as needed (every 3-7 days if disease pressure is high or environmental conditions are highly favorable to disease outbreak, 10-28 days under low pressure or less conducive conditions).

Drench application: Mix 0.5 to 4.5 pints of Double Nickel™ LC per 100 gallons of water and apply as a drench or coarse spray to soil or other growing media in pots, flats, plugs, trays, or planting beds, for control or suppression of soilborne diseases of seedlings, cuttings, bedding plants, and transplants (including vegetables and other transplanted food crops). Make first application at or immediately before seeding, sticking, germination, or transplanting. Repeat applications every 14-28 days as needed. Transplants can be treated immediately before transplanting into field soils to protect against damping-off and other diseases that reduce plant establishment.

Cutting or root dip: Dip basal end of cuttings or bare roots (individually or in bunches) in a suspension of 1 to 2 pints of Double Nickel™ LC per gallon of water. Immerse for 5-10 seconds immediately before planting.

Chemigation: Mix 0.5 to 4.5 pints of Double Nickel™ LC per 100 gallons of water and apply via drip, handheld, or sprinkler irrigation systems. Refer to "Chemigation Instructions" for more details.

CROPS/USE SITES	DISEASES/PATHOGENS
Indoor, outdoor, and shade- or other cover-grown ornamental trees and shrubs, flowering plants, foliage plants, tropical plants, potted plants, potted or cut flowers, bedding plants, forestry seedlings, conifer production for reforestation, fruit trees, vegetables and other crops grown in greenhouses or nurseries.	Powdery mildews caused by <i>Erysiphe</i> , <i>Podosphaera</i> , <i>Sphaerotheca</i> , <i>Oidium</i> , and <i>Golovinomyces</i> spp. Anthracnose (<i>Colletotrichum</i> spp.) Bacterial leaf spots caused by <i>Erwinia</i> , <i>Pseudomonas</i> , and <i>Xanthomonas</i> spp. Damping-off disease (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> spp.) Late blight, blackeye, and root rots caused by <i>Phytophthora</i> spp. Gray mold and blight caused by <i>Botrytis cinerea</i> Black root rot (<i>Aspergillus</i> spp.) Black spot of roses (<i>Diplocarpon rosae</i>) Downy mildew (<i>Peronospora</i> spp.) Leaf spots caused by <i>Alternaria</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Entomosporium</i> , <i>Helminthosporium</i> , and <i>Myrothecium</i> spp.) Rust (<i>Puccinia</i> spp.) Scab (<i>Venturia</i> spp.) Root rot, bottom rot, or stem rot caused by <i>Rhizoctonia solani</i> Sclerotinia blight <i>Fusarium</i> wilts



Turfgrass application

For control of foliar diseases, apply Double Nickel™ LC at 1 to 4 fluid ounces per 1,000 square feet as a ground-directed spray in sufficient water to provide thorough coverage. To control root and crown diseases in or on the soil, immediately follow the spray with sufficient overhead sprinkler irrigation to move the product into the root zone.

CROPS/USE SITES	DISEASES/PATHOGENS
Turf, sod, lawns, golf course (fairways, roughs, greens, tees), grass seed production Including but not limited to: Bluegrass, Bentgrass, Bermudagrass (common & hybrid), Dichondra, Fescue, Orchardgrass, Poa annua, St. Augustine grass, Ryegrass, Zoysia, mixtures, and other grasses or ornamental turf	Anthraxnose (<i>Colletotrichum graminicola</i>) Brown patch (<i>Rhizoctonia solani</i>) Dollar spot (<i>Lanzia and Moellerodiscus</i> spp., formerly <i>Sclerotinia homeocarpa</i>) Powdery mildew (<i>Erysiphe graminis</i>) Rust (<i>Puccinia</i> spp.) Gray leaf spot (<i>Pyricularia grisea</i>) "Damping off" or seedling blights caused by <i>Pythium</i>

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep unprotected persons out of treated areas until sprays have dried.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of onsite or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

CHEMIGATION INSTRUCTIONS

General Information:

Apply this product only through drip (trickle) irrigation (including micro-irrigation through spaghetti tubes or individual tubes) or sprinkler irrigation (including impact or microsprinklers, microjet, overhead boom, water gun, solid set, lateral move, end low, side-roll, center pivot, or hand move, including mist-type systems); or with hand-held calibrated irrigation equipment (such as a hand-held wand with injector). Do not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and con-

nected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and injector system and flush with clean water before use. Failure to provide a clean tank, free of scale or residues may reduce effectiveness of this product.

Drip (trickle) and micro-irrigation chemigation

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.

Sprinkler chemigation:

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

WARRANTY

Certis USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purpose referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the disease problem, condition of the crop, incompatibility with other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage, or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

NOV 30 2012

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Christine A Dively
Certis USA
9145 Guiford Road
Suite 175
Columbia, MD 21046

RE: Product Name: CX-9032
EPA Reg. No: 70051-107
Application for Notification request dated October 24, 2012 for Revision to add text "Not
Approved for use in California" for Specific Use sites

Dear Ms. Dively:

The Biopesticides and Pollution Prevention Division is in receipt of your application for Notification under Pesticides Registration Notice (PRN) 98-10 dated above. A preliminary screen of this request has been conducted for its applicability under PRN 98-10 and it has been determined that the action(s) requested falls within the scope of PRN 98-10. Our records have been duly noted, and the letter submitted with this application has been stamped "Notification, received and accepted" and will be placed accordingly in our records.

Questions concerning this action should be directed to Susanne Cerrelli (703) 308-8077 or email at cerrelli.susanne@epa.gov.

Sincerely,

Sheryl Reilly, Ph.D.

Acting Branch Chief

Microbial Pesticides Branch

Biopesticides and Pollution Prevention

Division (7511P)

CONCURRENCES

SYMBOL	▶ 7511P	7511P						
SURNAME	▶ <i>SCerrelli</i>	<i>Reilly</i>						
DATE	▶ 11/27/12	11/29/12						

MASTER LABEL
SUBLABEL A: Agricultural Use

CX-9032

(alternate brand names: Amylo-X, Double Nickel LC)
 Aqueous Suspension Biofungicide/Bactericide
FOR ORGANIC PRODUCTION

**Active Ingredient:**

Bacillus amyloliquefaciens strain D747* 98.85 %

Other Ingredients 1.15%

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS: 2.5 Gallons

Lot No.:

See Inside Panels for Additional Precautionary Statements

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product label with you when calling a poison control center or doctor.
 Hot Line No.: 1-800-255-3924 for additional information

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS
CAUTION

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco and using the toilet.

Notification Accepted
 Date: NOV 30 2012
 Reviewer: S. Grady

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow manufacturer's instructions for cleaning and maintaining PPE. If no instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides, the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticides get inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For Terrestrial Uses: Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

CX-9032 can be applied alone or in combination and/or rotation with chemical fungicides as a tool for integrated disease management in agricultural crops, ornamental and nursery plants, and turfgrass. CX-9032 offers a valuable tool for management of resistance to chemical fungicides through its multiple and unique modes of action.

CX-9032 can be applied up to and including the day of harvest.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is: coveralls, waterproof gloves, shoes plus socks.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

MIXING AND HANDLING INSTRUCTIONS

Mix the required amount of CX-9032 in water with sufficient agitation to maintain a uniform suspension in the spray or mixing tank. Tank should be cleaned prior to use. Do not use highly alkaline or highly acidic water to mix sprays. Use a buffering agent if necessary to maintain neutrality (pH 6 to 8) of water in the tank. Maintain agitation during application. Apply immediately after mixing; do not allow spray mix to stand overnight.

CX-9032 can be mixed and used with other agricultural chemicals for which such mixing is permitted by the product labels, in accordance with the most restrictive of those label limitations and precautions. If such a mixture is planned, a compatibility "jar test" should first be conducted by mixing the correct proportions of CX-9032 and these products in a small volume of water.

APPLICATION METHODS

Ground: CX-9032 can be applied in most commonly-used ground application equipment, such as (but not limited to): tractor-mounted boom, airblast, high clearance, hose-end, backpack, and

other pressurized sprayers; hose-end or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method.

APPLICATION METHODS (cont.)

Aerial: CX-9032 can be applied by fixed or rotary winged aircraft in a minimum of 3 gallons of water per acre. Standard precautions should be taken to minimize spray drift.

Chemigation: CX-9032 can be applied through drip (trickle) and sprinkler type irrigation equipment. Refer to the section entitled "Chemigation Instructions" for detailed instructions.

Agricultural crops

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Vegetables and melons:	
Brassica vegetables such as broccoli, cabbage, cauliflower, Brussels sprouts, kohlrabi, and other cole crops.	Pin rot complex (<i>Alternaria/Xanthomonas</i>)* Leaf spots (<i>Alternaria</i> spp., <i>Xanthomonas</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe polygoni</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Bulb vegetables such as onions, garlic, shallots, and others.	<i>Botrytis</i> spp. (neck rot, leaf blight) Purple blotch (<i>Alternaria</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Rust (<i>Puccinia porii</i>)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Cucurbits such as cucumbers, squash (all types), cantaloupes, muskmelons, watermelons, and other melons.	Powdery mildew (<i>Erysiphe</i> and <i>Sphaerotheca</i> spp.) Downy mildew (<i>Pseudoperonospora</i> spp.) Gummy stem blight (<i>Didymella bryoniae</i> and <i>Phoma cucurbitacearum</i>) See instructions below for "Soil application" against the following diseases: Vine decline (<i>Monosporascus cannonballus</i>) ** Charcoal rot (<i>Macrophomina phaseoli</i>) ** "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Fruiting vegetables such as tomatoes, peppers, eggplant, tomatillo, okra, and others.	Bacterial spot (<i>Xanthomonas</i> spp.)* ¹ Bacterial speck (<i>Pseudomonas syringae</i> pv. <i>tomato</i>)* ¹ Gray mold (<i>Botrytis cinerea</i>) Powdery mildew* (<i>Leveillula</i> , <i>Oidiopsis</i> , <i>Erysiphe</i> , and <i>Sphaerotheca</i> spp.) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Southern blight (<i>Sclerotium rolfsii</i>)* and **
Leafy vegetables such as head and leaf lettuce, celery, spinach, radicchio, arugula, watercress, and others (including leafy <i>Brassica</i> vegetables such as mustard and collard greens, kale,	Downy mildew (<i>Bremia lactucae</i> , <i>Peronospora</i> spp.)* Powdery mildew (<i>Golovinomyces (Erysiphe) cichoracearum</i>)* Bacterial blights Head and leaf drop (<i>Sclerotinia</i> spp.)* ² Pink rot (<i>Sclerotinia sclerotiorum</i>)* ² Leaf spots (<i>Cercospora</i> spp.) See instructions below for "Soil application" against the following diseases:

bok choy, and related crops).	"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Bottom rot (<i>Rhizoctonia solani</i>)
Legume vegetables succulent and dried beans and peas such as green, snap, shell, and Lima beans, garbanzo beans, chickpeas, soybeans, dry beans, peas, split peas, lentils, and other legumes.	White mold (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Microsphaera diffusa</i>) Rusts*, including <i>Uromyces appendiculatus</i> , <i>Puccinia</i> spp., and Asian soybean rust (<i>Phyospora pachyrhizi</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Root, tuber, and corm vegetables such as potato, sweet potato, carrot, cassava, beets, ginger, radish, horseradish ²² , ginseng, turnip, and other root, tuber and corm crops.	Black root/crown rot (<i>Alternaria</i> spp.) Bacterial leaf blight (<i>Xanthomonas campestris</i>) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Gray mold (<i>Botrytis</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Black leg /bacterial soft rot (<i>Erwinia carotovora</i>)** Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: Black scurf (<i>Rhizoctonia solani</i>) Cavity spot (<i>Pythium</i> spp.) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Other vegetables such as sweet corn, popcorn, asparagus, peanut, and watercress	<i>Botrytis</i> spp. Rusts (<i>Puccinia</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> and <i>Cercosporidium</i> spp.)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tree fruits and nuts	
Citrus such as orange, lemon, lime, grapefruit, tangerine (mandarin), tangelo, pummelo, and other citrus	<i>Alternaria</i> leaf spot (<i>Alternaria alternata</i>) Postbloom fruit drop (<i>Colletotrichum acutatum</i>)* Greasy spot (<i>Mycosphaerella citri</i>)* ³ Citrus canker (<i>Xanthomonas campestris</i> pv. <i>citri</i>) ¹ Scab (<i>Elsinoe fawcetti</i>)* ⁴ Melanose (<i>Diaporthe citri</i>)*
Pome fruits such as apple, pear, crabapple, quince, and others	Powdery mildew (<i>Podosphaera leucotricha</i>) ⁵ Scab (<i>Venturia</i> spp.)* Flyspeck (<i>Zygophiala jamaicensis</i>) ^{6**} Sooty blotch disease complex ^{6**} Brooks spot (<i>Mycosphaerella pomi</i>) ^{6**} Bot rot/white rot (<i>Botryosphaeria dothidea</i>) ^{6**} Bitter rot (<i>Colletotrichum</i> spp.) ⁶ Cedar apple rust (<i>Gymnosporangium juniperi-virginianae</i>) ^{6**} Fire blight (<i>Erwinia amylovora</i>)* ⁷
Stone fruits such as apricot, cherry, nectarine, peach, plum, prune, pluot, and others	Powdery mildew (<i>Sphaerotheca</i> and <i>Podosphaera</i> spp.)* ⁸ Bacterial canker (<i>Pseudomonas</i> spp.) Brown rot blossom blight (<i>Monilinia laxa</i>) ⁹ Brown rot (<i>Monilinia fructicola</i>)* ¹⁰ Gray mold (<i>Botrytis cinerea</i>) ¹⁰ Peach leaf curl (<i>Taphrina deformans</i>) Bacterial leaf spot (<i>Xanthomonas arbuticola</i> pv. <i>pruni</i>) ¹ Rusty spot (<i>Podosphaera leucotricha</i>) ¹
Tree nuts such as almond, pistachio, pecan, walnut, filbert, hazelnut, chestnut,	Walnut blight (<i>Xanthomonas campestris</i>) ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>)* Bacterial canker (<i>Pseudomonas syringae</i>)

macadamia, and other tree nuts.	Shot hole (<i>Wilsonomyces carpophilus</i>)* Brown rot (<i>Monilinia</i> spp.)* Pecan scab (<i>Cladosporium caryigenum</i>)* ¹ and **
Pomegranates	Leaf and fruit spots (<i>Cercospora</i> , <i>Gloeosporium</i> and <i>Pestalotia</i> spp.) ¹ Fruit rots (<i>Alternaria</i> , <i>Botrytis</i> , and other spp.) ¹⁰ Powdery mildew (<i>Sphaerotheca pannosa</i>)
Other fruits	
Strawberry	Powdery mildew (<i>Sphaerotheca macularis</i> , <i>Erysiphe</i> spp.)* ¹² Gray mold (<i>Botrytis cinerea</i>)* ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>) Angular leaf spot (<i>Xanthomonas fragariae</i>) ¹ For the following diseases, see instructions below for "Soil application" (and also root dip instructions ²²): "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. Charcoal rot (<i>Macrophomina phaseolina</i>)**
Berries , including blueberry, blackberry, raspberry, loganberry, huckleberry, gooseberry, elderberry, cranberry (non-flooded fields), currant, and other berries	Mummy berry (<i>Monilinia vaccinii-corymbosi</i>)* Botrytis blight (<i>Botrytis cinerea</i>) Bacterial canker (<i>Pseudomonas</i> spp.) ¹³ Anthracnose fruit rot (<i>Colletotrichum acutatum</i>) ¹⁰
Grapes including wine grapes, table grapes, and raisins	Powdery mildew (<i>Erysiphe</i> (formerly <i>Uncinula</i>) <i>necator</i>) ¹⁴ Gray mold (<i>Botrytis cinerea</i>) ¹⁵ Sour rot complex ¹⁵ Downy mildew (<i>Plasmopara viticola</i>)* Phomopsis (<i>Phomopsis viticola</i>) ¹⁶ Eutypa (<i>Eutypa lata</i>) ¹⁷
Tropical fruits such as avocado ¹⁸ , mango ¹⁸ , papaya ¹⁹ , pineapple ¹⁹ , banana, plantain, and others.	Anthracnose (<i>Colletotrichum</i> spp.) Scab (<i>Sphaceloma perseae</i>) Bacterial canker (<i>Xanthomonas campestris</i>) Sigatoka (<i>Mycosphaerella fijiensis</i>) ²⁰
Other Crops	
Herbs and spices such as basil, thyme, coriander, dill, cilantro, parsley, mint, and others.	Powdery mildews (<i>Oidium</i> spp. and others) Downy mildews (<i>Peronospora</i> spp. and others)* Damping off diseases (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Alternaria</i> , and <i>Fusarium</i> spp.) Leaf spots (<i>Alternaria</i> , <i>Septoria</i> , <i>Colletotrichum</i> , and <i>Cercospora</i> spp.)* Bacterial diseases (<i>Erwinia</i> , <i>Xanthomonas</i> , and <i>Pseudomonas</i> spp.) Rusts (<i>Puccinia</i> spp. and others) "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Coffee	Coffee berry disease (<i>Colletotrichum coffeanum</i>) ¹ Coffee rust (<i>Hemileia vastatrix</i>) ^{1**} Anthracnose (<i>Colletotrichum</i> spp.) <i>Botrytis</i> flower blight <i>Cercospora</i> leaf spot** and berry blotch** "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tobacco	Angular leaf spot (<i>Pseudomonas</i> spp.) Anthracnose (<i>Colletotrichum</i> and <i>Glomerella</i> spp.) Blue mold or downy mildew (<i>Peronospora</i> spp.)* Brown spot (<i>Alternaria</i>) Barn spot/ frog-eye leaf spot (<i>Cercospora nicotianae</i>) ¹⁰ Collar rot (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Erysiphe cichoracearum</i>)

	Target spot (<i>Rhizoctonia solani</i>) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Olpidium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Charcoal rot (<i>Macrophomina phaseolina</i>) Black root rot (<i>Thielaviopsis basicola</i>) Black shank (<i>Phytophthora</i> spp.)* Southern blight/southern stem rot (<i>Sclerotium rolfsii</i>)*
Mint	Rust (<i>Puccinia</i> spp.)
Hops	Powdery mildew (<i>Sphaerotheca macularis</i>) ²¹

Footnotes:

*Suppression only; for improved control mix or rotate with chemical fungicide approved for such use. ** NOT FOR USE IN CALIFORNIA

¹ Tank mix or rotate with copper-based fungicides at label rates for improved control.

² Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist.

³ For greasy spot suppression, apply at first new foliar flush and repeat with each new flush. Tank mix with spray oil or copper based fungicide at labeled rates.

⁴ For suppression of citrus scab, start applications at first new foliage flush and repeat at petal fall and when fruit are ½ inch in diameter.

⁵ Make first application at or before tight cluster if conditions favor disease development. Repeat at 7-10 day intervals through the second cover spray or longer on susceptible varieties or if environmental conditions favor rapid disease development.

⁶ Begin applications before bloom when environmental conditions favor disease development, repeating at 7 to 14 day intervals or as needed. Control may be enhanced by addition of a surfactant to improve spray coverage. Use only surfactants known to be safe for use on the crop and for which such use is allowed.

⁷ Rotate with antibiotics registered for fire blight control for improved performance. Begin applications at 1-5% open blossoms and repeat every 3-7 days as necessary until petal fall, when intervals can be increased to 7 days. CX-9032 can also be used in summer "cover spray" applications to control the shoot blight phase of fire blight and summer diseases. Can be mixed with copper fungicides to improve control.

⁸ Make first application at popcorn stage and repeat every 7 days.

⁹ Start applying at early bloom stage and repeat every 7 days through petal fall.

¹⁰ Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections.

¹¹ Begin applications at or before pistillate bloom, repeating every 7-10 days. Apply before rainfall if possible, and tank mix or rotate with a copper-based bactericide registered for such use for improved control.

¹² Start applications at or just before flowering and repeat every 7-10 days as needed through harvest.

¹³ Apply before fall rains and again during dormancy before spring growth.

¹⁴ Start applications when new shoots are ½ to 1½ inches long. Repeat at 3-5 inches, 8-10 inches, and then at 7-10 day intervals until disease conditions no longer exist.

¹⁵ Apply at bloom, before bunch closure, at veraison, and before harvest.

¹⁶ Apply when shoots are ½ to 1 inch long and again when 6-8 inches long.

¹⁷ Mix 2 fluid ounces CX-9032 per gallon of water and apply to pruning wounds.

¹⁸ Apply at budbreak and repeat on 14-21 day interval as needed through harvest.

¹⁹ Apply at flowering and repeat on 14-21 day interval as needed through harvest.

²⁰ Apply at first appearance of leaves and repeat at 7-21 day intervals as needed, in sufficient water to obtain thorough coverage of foliage. Tank mix with spray oil or other registered fungicides for improved control.

²¹ Mix 6 to 10 fluid ounces CX-9032 per 100 gallons of water and apply in minimum of 20 gallons per acre from emergence to training, 50 gallons per acre from training to wire, and 100 gallons per acre from wire touch through harvest.

²² For treatment of horseradish or strawberry roots immediately before transplanting: immerse bare roots (individually or in bunches) for 10 seconds in a suspension of 1 to 2 pints CX-9032 per gallon of water.

Foliar application: For control of diseases on foliage, flowers, fruit, or other above-ground parts of plants: Mix CX-9032 in water and apply as a spray at a rate of 0.5 to 6 quarts of CX-9032 per acre in sufficient water to achieve thorough coverage of the crop canopy with minimal runoff. Begin applications at crop emergence, transplanting, or when conditions are conducive to development of disease. Repeat application every 3 to 10 days, or as needed, for as long as conditions favor disease development. Lower rates (0.5 to 3 quarts per acre) may be applied under light disease pressure, to smaller (e.g. newly-emerged) plants, or when CX-9032 is used in

a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (3-6 quarts/acre), apply more frequently (every 3-7 days), and mix or rotate CX-9032 with other fungicides for improved performance.

Soil application: *For control of soilborne diseases infecting seeds, seedlings, roots, crown, stems, or other plant parts below ground or in contact with soil:* Apply CX-9032 at **0.5 to 4.5 pints per acre**. Mix the required amount in sufficient water to apply by one of the following methods:

- Soil drench applied to transplants in flats or pots in the greenhouse or nursery any time prior to transplanting (see additional drench instructions under “Nurseries, greenhouses, shade houses, and ornamental plants” below).
- Soil drench at transplanting, using a “water wheel” injector, spray nozzles/hoses, or other method to drench each root ball and/or planting hole.
- Soil or seedline drench, or banded spray (in-furrow) at planting. See the section on “Banded (in-furrow) application” below for additional instructions.

Follow-up (post-planting) preventative applications can be made every 2-4 weeks by one or more of the following methods, if needed:

- Drip (trickle) or any type of sprinkler irrigation, any time after planting or transplanting. See Chemigation Instructions for additional information.
- Spray directly onto the soil surface and/or lower plant parts. If targeting root disease, follow immediately with sufficient overhead sprinkler irrigation to move CX-9032 to the root zone.
- Injection directly into the rooting zone using shanks or similar equipment.

Lower rates (0.5 to 2 pints of CX-9032 per acre) may be applied under light disease pressure, to smaller plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (2 - 4.5 pints per acre), apply more frequently (every 2 weeks), and mix or rotate CX-9032 with other fungicides for improved performance.

Banded (in-furrow) application: Use the table below (rate CX-9032 per acre) to determine the correct application rate in fluid ounces per 1,000 row feet based on row spacing and desired rate per acre. Mix the required amount of CX-9032 in water and apply as banded spray (4” to 6” wide) or seedline drench centered over the planting furrow. Apply directly over seeds in the furrow just before they are covered with soil. The volume of water required per acre or per 1,000 row feet will depend on the application equipment used. Consult your local cooperative extension service if you need assistance calibrating band spraying equipment.

4" row spacing	0.5 to 1.0 pints per acre
6" row spacing	0.75 to 1.5 pints per acre
8" row spacing	1.0 to 2.0 pints per acre
10" row spacing	1.25 to 2.5 pints per acre

Rates for banded (in-furrow) application: Find desired application rate of CX-9032 per acre in the left column. Read across that line to the correct row spacing indicated at the top to find the number of fluid ounces per 1,000 row feet that will provide the desired application rate per acre.

CX-9032 rate/acre		Space between rows (inches)														
Pints	fl oz	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
0.5	8	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
0.75	12	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
1.0	16	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2
1.25	20	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.5
1.5	24	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8
1.75	28	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
2.0	32	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2.25	36	0.8	1.0	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	2.3	2.5	2.6	2.8
2.5	40	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9	3.1
2.75	44	1.0	1.2	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2	3.4
3.0	48	1.1	1.3	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.5	3.7
3.25	52	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
3.5	56	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.3
3.75	60	1.4	1.6	1.8	2.1	2.3	2.5	2.8	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6
4.0	64	1.5	1.7	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
4.25	68	1.6	1.8	2.1	2.3	2.6	2.9	3.1	3.4	3.6	3.9	4.2	4.4	4.7	4.9	5.2
4.5	72	1.7	1.9	2.2	2.5	2.8	3.0	3.3	3.6	3.9	4.1	4.4	4.7	5.0	5.2	5.5

Nurseries, greenhouses, shadehouses, and ornamental plants

Spray application: Mix **0.5 to 6 quarts of CX-9032 per 100 gallons of water** and apply as a foliar spray of sufficient volume to wet the entire plant with minimal runoff. Begin preventative applications at plant emergence and repeat every 3-28 days as needed (every 3-7 days if disease pressure is high or environmental conditions are highly favorable to disease outbreak, 10-28 days under low pressure or less conducive conditions).

Drench application: Mix **0.5 to 4.5 pints of CX-9032 per 100 gallons of water** and apply as a drench or coarse spray to soil or other growing media in pots, flats, plugs, trays, or planting beds, for control or suppression of soilborne diseases of seedlings, cuttings, bedding plants, and transplants (including vegetables and other transplanted food crops). Make first application at or immediately before seeding, sticking, germination, or transplanting. Repeat applications every 14-28 days as needed. Transplants can be treated immediately before transplanting into field soils to protect against damping-off and other diseases that reduce plant establishment.

Cutting or root dip: Dip basal end of cuttings or bare roots (individually or in bunches) in a suspension of **1 to 2 pints of CX-9032 per gallon of water**. Immerse for 5-10 seconds immediately before planting.

Chemigation: Mix **0.5 to 4.5 pints of CX-9032 per 100 gallons of water** and apply via drip, handheld, or sprinkler irrigation systems. Refer to "Chemigation Instructions" for more details.

CROPS/USE SITES	DISEASES/PATHOGENS
Indoor, outdoor, and shade- or other cover-grown ornamental trees and shrubs, flowering plants, foliage plants, tropical plants, potted plants, potted or cut flowers, bedding plants, forestry seedlings, conifer production for reforestation, fruit trees, vegetables and other crops grown in greenhouses or nurseries.	<p>Powdery mildews caused by <i>Erysiphe</i>, <i>Podosphaera</i>, <i>Sphaerotheca</i>, <i>Oidium</i>, and <i>Golovinomyces</i> spp.</p> <p>Anthrachnose (<i>Colletotrichum</i> spp.)</p> <p>Bacterial leaf spots caused by <i>Erwinia</i>, <i>Pseudomonas</i>, and <i>Xanthomonas</i> spp.</p> <p>Damping-off disease (<i>Rhizoctonia</i>, <i>Pythium</i>, <i>Fusarium</i> spp.)</p> <p>Late blight, blackeye, and root rots caused by <i>Phytophthora</i> spp.</p> <p>Gray mold and blight caused by <i>Botrytis cinerea</i></p> <p>Black root rot (<i>Aspergillus</i> spp.)</p> <p>Black spot of roses (<i>Diplocarpon rosae</i>)</p> <p>Downy mildew (<i>Peronospora</i> spp.)</p> <p>Leaf spots caused by <i>Alternaria</i>, <i>Septoria</i>, <i>Cercospora</i>, <i>Entomosporium</i>, <i>Helminthosporium</i>, and <i>Myrothecium</i> spp.)</p> <p>Rust (<i>Puccinia</i> spp.)</p> <p>Scab (<i>Venturia</i> spp.)</p> <p>Root rot, bottom rot, or stem rot caused by <i>Rhizoctonia solani</i></p> <p><i>Sclerotinia</i> blight</p> <p><i>Fusarium</i> wilts</p>

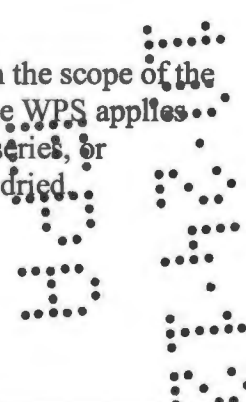
Turfgrass application

For control of foliar diseases, apply CX-9032at 1 to 4 fluid ounces per 1,000 square feet as a ground-directed spray in sufficient water to provide thorough coverage. To control root and crown diseases in or on the soil, immediately follow the spray with sufficient overhead sprinkler irrigation to move the product into the root zone.

USE SITES/CROPS	DISEASES/PATHOGENS
<p>Turf, sod, lawns, golf course (fairways, roughs, greens, tees), grass seed production</p> <p>Including but not limited to:</p> <p>Bluegrass, Bentgrass, Bermudagrass (common & hybrid), Dichondra, Fescue, Orchardgrass, <i>Poa annua</i>, St. Augustine grass, Ryegrass, <i>Zoysia</i>, mixtures, and other grasses or ornamental turf</p>	<p>Anthrachnose (<i>Colletotrichum graminicola</i>)</p> <p>Brown patch (<i>Rhizoctonia solani</i>)</p> <p>Dollar spot (<i>Lanzia</i> and <i>Moellerodiscus</i> spp., formerly <i>Sclerotinia homeocarpa</i>)</p> <p>Powdery mildew (<i>Erysiphe graminis</i>)</p> <p>Rust (<i>Puccinia</i> spp.)</p> <p>Gray leaf spot (<i>Pyricularia grisea</i>)</p> <p>"Damping off" or seedling blights caused by <i>Pythium</i></p>

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep unprotected persons out of treated areas until sprays have dried.



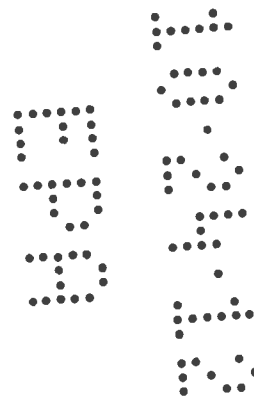
STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of onsite or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.



CHEMIGATION INSTRUCTIONS

General information:

Apply this product only through drip (trickle) irrigation (including micro-irrigation through spaghetti tubes or individual tubes) or sprinkler irrigation (including impact or microsprinklers, microjet, overhead boom, water gun, solid set, lateral move, end tow, side-roll, center pivot, or hand move, including mist-type systems); or with hand-held calibrated irrigation equipment (such as a hand-held wand with injector). Do not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and injector system and flush with clean water before use. Failure to provide a clean tank, free of scale or residues may reduce effectiveness of this product.

Drip (trickle) and micro-irrigation chemigation

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.

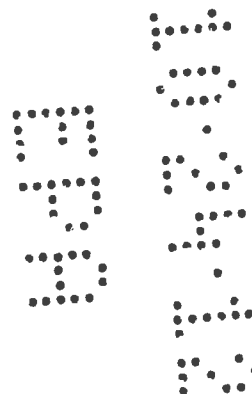
Sprinkler chemigation:

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

WARRANTY

Certis USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purpose referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the disease problem, condition of the crop, incompatibility with other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage, or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.



MASTER LABEL
SUBLABEL B: Residential Use

OMRI placeholder

CX-9032

Aqueous Suspension Biofungicide/Bactericide for control of plant diseases in home gardens: vegetables, ornamental and fruit trees, shrubs, lawns, flowers, bedding plants, and potted ornamental plants

FOR ORGANIC GARDENING

Active Ingredient:

Bacillus amyloliquefaciens strain D747* 98.85 %

Other Ingredients 1.15 %

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS:

Lot No.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS (AND DOMESTIC ANIMALS): CAUTION:

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor.
Hot Line No.: 1-800-255-3924 for additional information

ENVIRONMENTAL HAZARDS:

To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Mixing instructions:

CX-9032 must be mixed with water and applied as a spray to fruit and foliage, or as a drench to plant roots. See below for specific mix rate information.

Application rates and methods:

Spray application for control of powdery mildews, leaf spots, anthracnose, gray mold, and other diseases affecting leaves, flowers, fruit, and other above-ground plant parts of home garden plants: Mix 1 teaspoon of CX-9032 per gallon of water and apply directly to plants using a hand pump sprayer or other suitable spray equipment. Spray just enough to wet all leaves and fruit with minimal run-off or dripping. Total coverage depends on the size of plants to be sprayed and the type of sprayer used. Repeat as needed to maintain disease control, typically every 7-10 days. If disease is prevalent or environmental conditions such as high humidity favor disease outbreak, increase the mixing rate to 1 tablespoon per gallon and shorten the interval between sprays to every 3-7 days.

Drench application for control of diseases affecting plant roots, tubers, or other parts of plants in contact with soil in the home garden: Mix 1 teaspoon of CX-9032 per gallon of water and apply to the soil by one of the following methods:

1. For potted plants (indoors or outdoors), apply in sufficient water to wet the entire root mass using a watering can or tank-fed watering wand. Do not water plants again until 24 hours after application. Alternatively, use a hand-pump or other sprayer to spray the mixture on the soil surface in each pot, then immediately apply sufficient water to move the product into the roots.

2. Drench the roots of transplants with approx. 4 fluid ounces of the mixture immediately before transplanting into pots or garden soil. Allow to soak into the root ball before transplanting.
3. For outdoor-grown plants, use a watering can or sprayer to drench the soil in the planting furrow or transplant hole immediately before planting or transplanting. The amount of water required will depend on the size of the hole or length of furrow.
4. Alternatively, apply in the first watering after planting or transplanting, either by mixing directly into the water at the rate indicated above, or by spraying onto the soil surface at the base of each plant and immediately watering in with a watering can, hose, sprinkler, or other watering device.

CX-9032 can be applied up to and including the day of harvest.

For application to lawns and other grass areas: Mix 1 teaspoon of CX-9032 per gallon of water and apply as a fine spray to the surface of the lawn or grass area. Total amount of mix required will depend on the type of sprayer used and area to be covered, but typically 2 to 5 gallons of spray mix may be required per 1,000 square feet of lawn. CX-9032 can be "watered in" for control of soilborne root and crown diseases by thorough watering immediately after application either with sprinklers or by spraying just before or during light rain.

STORAGE AND DISPOSAL

PESTICIDE STORAGE:

Keep in original container. Store away from direct sunlight, feed, or foodstuffs. Keep container tightly sealed when not in use.

PESTICIDE DISPOSAL AND CONTAINER HANDLING

Non-refillable container. Do not reuse or refill container.

If empty:

Place in trash or offer for recycling, if available.

If partly filled:

Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY

Certis USA L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the insect problem, condition of the crop, incompatibility with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.



United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☐ Amendment
☒ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 70051-107	2. EPA Product Manager Nesci	3. Proposed Classification <input type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) CX-9032	PM# Microbial Pesticides	
5. Name and Address of Applicant (Include ZIP Code) Certs U.S.A. L.L.C. 9145 Guilford Road, Suite 175 Columbia, Maryland 21046 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Addition of label text required by CADPR (Not For Use in California and associated asterisks). No other changes to the EPA-Stamped label. See attached Certification Statement.

Section - III

1. Material This Product Will Be Packaged In:			
Child-Resistant Packaging <input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	2. Type of Container <input checked="" type="checkbox"/> Metal <input checked="" type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____
* Certification must be submitted		If "Yes" Unit Packaging wgt. No. per container	If "Yes" Package wgt. No. per container
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 2.5 gal.	5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product
6. Manner in Which Label is Affixed to Product <input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled <input type="checkbox"/> Other _____			

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name Christine A. Dively	Title Director of Reg. Affairs	Telephone No. (Include Area Code) 301-483-3806	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment, both under applicable law.		6. Date Application Received (Stamped) NOV 30 2012 Notification Accepted Reviewer: <i>Scovelli</i>	
2. Signature <i>Christine A. Dively</i>	3. Title Director of Reg. Affairs	Date: October 9, 2012	
4. Typed Name Christine A. Dively	5. Date October 9, 2012	Reviewer: <i>Scovelli</i>	

Highlighted version

Not Accepted

Date:

Reviewer:

MASTER LABEL
SUBLABEL A: Agricultural Use

CX-9032

(alternate brand names: Amylo-X, Double Nickel LC)
Aqueous Suspension Biofungicide/Bactericide

FOR ORGANIC PRODUCTION



Active Ingredient:

Bacillus amyloliquefaciens strain D747* 98.85 %

Other Ingredients 1.15%

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107

EPA Est. No. 70051-CA-001

Notification Accepted

Date: **NOV 30 2012**

Reviewer: *Scorcher*

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS: 2.5 Gallons

Lot No.:

See Inside Panels for Additional Precautionary Statements

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product label with you when calling a poison control center or doctor.
Hot Line No.: 1-800-255-3924 for additional information

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco and using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow manufacturer's instructions for cleaning and maintaining PPE. If no instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides, the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticides get inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For Terrestrial Uses: Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

CX-9032 can be applied alone or in combination and/or rotation with chemical fungicides as a tool for integrated disease management in agricultural crops, ornamental and nursery plants, and turfgrass. CX-9032 offers a valuable tool for management of resistance to chemical fungicides through its multiple and unique modes of action.

CX-9032 can be applied up to and including the day of harvest.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is: coveralls, waterproof gloves, shoes plus socks.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

MIXING AND HANDLING INSTRUCTIONS

Mix the required amount of CX-9032 in water with sufficient agitation to maintain a uniform suspension in the spray or mixing tank. Tank should be cleaned prior to use. Do not use highly alkaline or highly acidic water to mix sprays. Use a buffering agent if necessary to maintain neutrality (pH 6 to 8) of water in the tank. Maintain agitation during application. Apply immediately after mixing; do not allow spray mix to stand overnight.

CX-9032 can be mixed and used with other agricultural chemicals for which such mixing is permitted by the product labels, in accordance with the most restrictive of those label limitations and precautions. If such a mixture is planned, a compatibility "jar test" should first be conducted by mixing the correct proportions of CX-9032 and these products in a small volume of water.

APPLICATION METHODS

Ground: CX-9032 can be applied in most commonly-used ground application equipment, such as (but not limited to): tractor-mounted boom, airblast, high clearance, hose-end, backpack, and

other pressurized sprayers; hose-end or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method.

APPLICATION METHODS (cont.)

Aerial: CX-9032 can be applied by fixed or rotary winged aircraft in a minimum of 3 gallons of water per acre. Standard precautions should be taken to minimize spray drift.

Chemigation: CX-9032 can be applied through drip (trickle) and sprinkler type irrigation equipment. Refer to the section entitled "Chemigation Instructions" for detailed instructions.

Agricultural crops

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Vegetables and melons:	
Brassica vegetables such as broccoli, cabbage, cauliflower, Brussels sprouts, kohlrabi, and other cole crops.	Pin rot complex (<i>Alternaria/Xanthomonas</i>)* Leaf spots (<i>Alternaria</i> spp., <i>Xanthomonas</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe polygoni</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Bulb vegetables such as onions, garlic, shallots, and others.	<i>Botrytis</i> spp. (neck rot, leaf blight) Purple blotch (<i>Alternaria</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Rust (<i>Puccinia porii</i>)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Cucurbits such as cucumbers, squash (all types), cantaloupes, muskmelons, watermelons, and other melons.	Powdery mildew (<i>Erysiphe</i> and <i>Sphaerotheca</i> spp.) Downy mildew (<i>Pseudoperonospora</i> spp.) Gummy stem blight (<i>Didymella bryoniae</i> and <i>Phoma cucurbitacearum</i>) See instructions below for "Soil application" against the following diseases: Vine decline (<i>Monosporascus cannonballus</i>) ** Charcoal rot (<i>Macrophomina phaseoli</i>) ** "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Fruiting vegetables such as tomatoes, peppers, eggplant, tomatillo, okra, and others.	Bacterial spot (<i>Xanthomonas</i> spp.)* ¹ Bacterial speck (<i>Pseudomonas syringae</i> pv. <i>tomato</i>)* ¹ Gray mold (<i>Botrytis cinerea</i>) Powdery mildew* (<i>Leveillula</i> , <i>Oidiopsis</i> , <i>Erysiphe</i> , and <i>Sphaerotheca</i> spp.) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Southern blight (<i>Sclerotium rolfsii</i>)* and **
Leafy vegetables such as head and leaf lettuce, celery, spinach, radicchio, arugula, watercress, and others (including leafy <i>Brassica</i> vegetables such as mustard and collard greens, kale,	Downy mildew (<i>Bremia lactucae</i> , <i>Peronospora</i> spp.)* Powdery mildew (<i>Golovinomyces (Erysiphe) cichoracearum</i>)* Bacterial blights Head and leaf drop (<i>Sclerotinia</i> spp.)* ² Pink rot (<i>Sclerotinia sclerotiorum</i>)* ² Leaf spots (<i>Cercospora</i> spp.) See instructions below for "Soil application" against the following diseases:

bok choy, and related crops).	"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Bottom rot (<i>Rhizoctonia solani</i>)
Legume vegetables succulent and dried beans and peas such as green, snap, shell, and Lima beans, garbanzo beans, chickpeas, soybeans, dry beans, peas, split peas, lentils, and other legumes.	White mold (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Microsphaera diffusa</i>) Rusts*, including <i>Uromyces appendiculatus</i> , <i>Puccinia</i> spp., and Asian soybean rust (<i>Phayospora pachyrhizi</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Root, tuber, and corm vegetables such as potato, sweet potato, carrot, cassava, beets, ginger, radish, horseradish ²² , ginseng, turnip, and other root, tuber and corm crops.	Black root/crown rot (<i>Alternaria</i> spp.) Bacterial leaf blight (<i>Xanthomonas campestris</i>) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Gray mold (<i>Botrytis</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Black leg /bacterial soft rot (<i>Erwinia carotovora</i>)** Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: Black scurf (<i>Rhizoctonia solani</i>) Cavity spot (<i>Pythium</i> spp.) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Other vegetables such as sweet corn, popcorn, asparagus, peanut, and watercress	<i>Botrytis</i> spp. Rusts (<i>Puccinia</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> and <i>Cercosporidium</i> spp.)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tree fruits and nuts	
Citrus such as orange, lemon, lime, grapefruit, tangerine (mandarin), tangelo, pummelo, and other citrus	<i>Alternaria</i> leaf spot (<i>Alternaria alternata</i>) Postbloom fruit drop (<i>Colletotrichum acutatum</i>)* Greasy spot (<i>Mycosphaerella citri</i>) ³ Citrus canker (<i>Xanthomonas campestris</i> pv. <i>citri</i>) ¹ Scab (<i>Elsinoe fawcetti</i>)* ⁴ Melanose (<i>Diaporthe citri</i>)*
Pome fruits such as apple, pear, crabapple, quince, and others	Powdery mildew (<i>Podosphaera leucotricha</i>) ⁵ Scab (<i>Venturia</i> spp.)* Flyspeck (<i>Zygophiala jamaicensis</i>) ^{6**} Sooty blotch disease complex ^{6**} Brooks spot (<i>Mycosphaerella pomi</i>) ^{6**} Bot rot/white rot (<i>Botryosphaeria dothidea</i>) ^{6**} Bitter rot (<i>Colletotrichum</i> spp.) ⁶ Cedar apple rust (<i>Gymnosporangium juniperi-virginianae</i>) ^{6**} Fire blight (<i>Erwinia amylovora</i>)* ⁷
Stone fruits such as apricot, cherry, nectarine, peach, plum, prune, pluot, and others	Powdery mildew (<i>Sphaerotheca</i> and <i>Podosphaera</i> spp.)* ⁸ Bacterial canker (<i>Pseudomonas</i> spp.) Brown rot blossom blight (<i>Monilinia laxa</i>) ⁹ Brown rot (<i>Monilinia fructicola</i>)* ¹⁰ Gray mold (<i>Botrytis cinerea</i>) ¹⁰ Peach leaf curl (<i>Taphrina deformans</i>) Bacterial leaf spot (<i>Xanthomonas arbuticola</i> pv. <i>pruni</i>) ¹ Rusty spot (<i>Podosphaera leucotricha</i>) ¹
Tree nuts such as almond, pistachio, pecan, walnut, filbert, hazelnut, chestnut,	Walnut blight (<i>Xanthomonas campestris</i>) ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>)* Bacterial canker (<i>Pseudomonas syringae</i>)

macadamia, and other tree nuts.	Shot hole (<i>Wilsonomyces carpophilus</i>)* Brown rot (<i>Monilinia</i> spp.)* Pecan scab (<i>Cladosporium caryigenum</i>)* ¹ and **
Pomegranates	Leaf and fruit spots (<i>Cercospora</i> , <i>Gloeosporium</i> and <i>Pestalotia</i> spp.) ¹ Fruit rots (<i>Alternaria</i> , <i>Botrytis</i> , and other spp.) ¹⁰ Powdery mildew (<i>Sphaerotheca pannosa</i>)
Other fruits	
Strawberry	Powdery mildew (<i>Sphaerotheca macularis</i> , <i>Erysiphe</i> spp.)* ¹² Gray mold (<i>Botrytis cinerea</i>)* ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>) Angular leaf spot (<i>Xanthomonas fragariae</i>) ¹ For the following diseases, see instructions below for "Soil application" (and also root dip instructions ²²): "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. Charcoal rot (<i>Macrophomina phaseolina</i>)**
Berries , including blueberry, blackberry, raspberry, loganberry, huckleberry, gooseberry, elderberry, cranberry (non-flooded fields), currant, and other berries	Mummy berry (<i>Monilinia vaccinii-corymbosi</i>)* Botrytis blight (<i>Botrytis cinerea</i>) Bacterial canker (<i>Pseudomonas</i> spp.) ¹³ Anthracnose fruit rot (<i>Colletotrichum acutatum</i>) ¹⁰
Grapes including wine grapes, table grapes, and raisins	Powdery mildew (<i>Erysiphe</i> (formerly <i>Uncinula</i>) <i>necator</i>) ¹⁴ Gray mold (<i>Botrytis cinerea</i>) ¹⁵ Sour rot complex ¹⁵ Downy mildew (<i>Plasmopara viticola</i>)* Phomopsis (<i>Phomopsis viticola</i>) ¹⁶ Eutypa (<i>Eutypa lata</i>) ¹⁷
Tropical fruits such as avocado ¹⁸ , mango ¹⁸ , papaya ¹⁹ , pineapple ¹⁹ , banana, plantain, and others.	Anthracnose (<i>Colletotrichum</i> spp.) Scab (<i>Sphaceloma perseae</i>) Bacterial canker (<i>Xanthomonas campestris</i>) Sigatoka (<i>Mycosphaerella fijiensis</i>) ²⁰
Other Crops	
Herbs and spices such as basil, thyme, coriander, dill, cilantro, parsley, mint, and others.	Powdery mildews (<i>Oidium</i> spp. and others) Downy mildews (<i>Peronospora</i> spp. and others)* Damping off diseases (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Alternaria</i> , and <i>Fusarium</i> spp.) Leaf spots (<i>Alternaria</i> , <i>Septoria</i> , <i>Colletotrichum</i> , and <i>Cercospora</i> spp.)* Bacterial diseases (<i>Erwinia</i> , <i>Xanthomonas</i> , and <i>Pseudomonas</i> spp.) Rusts (<i>Puccinia</i> spp. and others) "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Coffee	Coffee berry disease (<i>Colletotrichum coffeanum</i>) ¹ Coffee rust (<i>Hemileia vastatrix</i>) ¹ *** Anthracnose (<i>Colletotrichum</i> spp.) <i>Botrytis</i> flower blight <i>Cercospora</i> leaf spot** and berry blotch** "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tobacco	Angular leaf spot (<i>Pseudomonas</i> spp.) Anthracnose (<i>Colletotrichum</i> and <i>Glomerella</i> spp.) Blue mold or downy mildew (<i>Peronospora</i> spp.)* Brown spot (<i>Alternaria</i>) Barn spot/ frog-eye leaf spot (<i>Cercospora nicotianae</i>) ¹⁰ Collar rot (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Erysiphe cichoracearum</i>)

	Target spot (<i>Rhizoctonia solani</i>) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Olpidium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Charcoal rot (<i>Macrophomina phaseolina</i>) Black root rot (<i>Thielaviopsis basicola</i>) Black shank (<i>Phytophthora</i> spp.)* Southern blight/southern stem rot (<i>Sclerotium rolfsii</i>)*
Mint	Rust (<i>Puccinia</i> spp.)
Hops	Powdery mildew (<i>Sphaerotheca macularis</i>) ²¹
Footnotes: *Suppression only; for improved control mix or rotate with chemical fungicide approved for such use. ** NOT FOR USE IN CALIFORNIA ¹ Tank mix or rotate with copper-based fungicides at label rates for improved control. ² Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist. ³ For greasy spot suppression, apply at first new foliar flush and repeat with each new flush. Tank mix with spray oil or copper based fungicide at labeled rates. ⁴ For suppression of citrus scab, start applications at first new foliage flush and repeat at petal fall and when fruit are ½ inch in diameter. ⁵ Make first application at or before tight cluster if conditions favor disease development. Repeat at 7-10 day intervals through the second cover spray or longer on susceptible varieties or if environmental conditions favor rapid disease development. ⁶ Begin applications before bloom when environmental conditions favor disease development, repeating at 7 to 14 day intervals or as needed. Control may be enhanced by addition of a surfactant to improve spray coverage. Use only surfactants known to be safe for use on the crop and for which such use is allowed. ⁷ Rotate with antibiotics registered for fire blight control for improved performance. Begin applications at 1-5% open blossoms and repeat every 3-7 days as necessary until petal fall, when intervals can be increased to 7 days. CX-9032 can also be used in summer "cover spray" applications to control the shoot blight phase of fire blight and summer diseases. Can be mixed with copper fungicides to improve control. ⁸ Make first application at popcorn stage and repeat every 7 days. ⁹ Start applying at early bloom stage and repeat every 7 days through petal fall. ¹⁰ Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections. ¹¹ Begin applications at or before pistillate bloom, repeating every 7-10 days. Apply before rainfall if possible, and tank mix or rotate with a copper-based bactericide registered for such use for improved control. ¹² Start applications at or just before flowering and repeat every 7-10 days as needed through harvest. ¹³ Apply before fall rains and again during dormancy before spring growth. ¹⁴ Start applications when new shoots are ½ to 1½ inches long. Repeat at 3-5 inches, 8-10 inches, and then at 7-10 day intervals until disease conditions no longer exist. ¹⁵ Apply at bloom, before bunch closure, at veraison, and before harvest. ¹⁶ Apply when shoots are ½ to 1 inch long and again when 6-8 inches long. ¹⁷ Mix 2 fluid ounces CX-9032 per gallon of water and apply to pruning wounds. ¹⁸ Apply at budbreak and repeat on 14-21 day interval as needed through harvest. ¹⁹ Apply at flowering and repeat on 14-21 day interval as needed through harvest. ²⁰ Apply at first appearance of leaves and repeat at 7-21 day intervals as needed, in sufficient water to obtain thorough coverage of foliage. Tank mix with spray oil or other registered fungicides for improved control. ²¹ Mix 6 to 10 fluid ounces CX-9032 per 100 gallons of water and apply in minimum of 20 gallons per acre from emergence to training, 50 gallons per acre from training to wire, and 100 gallons per acre from wire touch through harvest. ²² For treatment of horseradish or strawberry roots immediately before transplanting: immerse bare roots (individually or in bunches) for 40 seconds in a suspension of 1 to 2 pints CX-9032 per gallon of water.	

Foliar application: For control of diseases on foliage, flowers, fruit, or other above-ground parts of plants: Mix CX-9032 in water and apply as a spray at a rate of 0.5 to 6 quarts of CX-9032 per acre in sufficient water to achieve thorough coverage of the crop canopy with minimal runoff. Begin applications at crop emergence, transplanting, or when conditions are conducive to development of disease. Repeat application every 3 to 10 days, or as needed, for as long as conditions favor disease development. Lower rates (0.5 to 3 quarts per acre) may be applied under light disease pressure, to smaller (e.g. newly-emerged) plants, or when CX-9032 is used in

a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (3-6 quarts/acre), apply more frequently (every 3-7 days), and mix or rotate CX-9032 with other fungicides for improved performance.

Soil application: *For control of soilborne diseases infecting seeds, seedlings, roots, crown, stems, or other plant parts below ground or in contact with soil:* Apply CX-9032 at **0.5 to 4.5 pints per acre**. Mix the required amount in sufficient water to apply by one of the following methods:

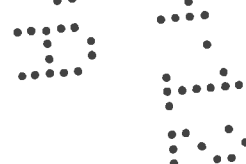
- Soil drench applied to transplants in flats or pots in the greenhouse or nursery any time prior to transplanting (see additional drench instructions under “Nurseries, greenhouses, shade houses, and ornamental plants” below).
- Soil drench at transplanting, using a “water wheel” injector, spray nozzles/hoses, or other method to drench each root ball and/or planting hole.
- Soil or seedline drench, or banded spray (in-furrow) at planting. See the section on “Banded (in-furrow) application” below for additional instructions.

Follow-up (post-planting) preventative applications can be made every 2-4 weeks by one or more of the following methods, if needed:

- Drip (trickle) or any type of sprinkler irrigation, any time after planting or transplanting. See Chemigation Instructions for additional information.
- Spray directly onto the soil surface and/or lower plant parts. If targeting root disease, follow immediately with sufficient overhead sprinkler irrigation to move CX-9032 to the root zone.
- Injection directly into the rooting zone using shanks or similar equipment.

Lower rates (0.5 to 2 pints of CX-9032 per acre) may be applied under light disease pressure, to smaller plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (2 - 4.5 pints per acre), apply more frequently (every 2 weeks), and mix or rotate CX-9032 with other fungicides for improved performance.

Banded (in-furrow) application: Use the table below (rate CX-9032 per acre) to determine the correct application rate in fluid ounces per 1,000 row feet based on row spacing and desired rate per acre. Mix the required amount of CX-9032 in water and apply as banded spray (4” to 6” wide) or seedline drench centered over the planting furrow. Apply directly over seeds in the furrow just before they are covered with soil. The volume of water required per acre or per 1,000 row feet will depend on the application equipment used. Consult your local cooperative extension service if you need assistance calibrating band spraying equipment.



Rates for banded (in-furrow) application: Find desired application rate of CX-9032 per acre in the left column. Read across that line to the correct row spacing indicated at the top to find the number of fluid ounces per 1,000 row feet that will provide the desired application rate per acre.

CX-9032 rate/acre		Space between rows (inches)														
Pints	fl oz	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
0.5	8	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
0.75	12	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
1.0	16	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2
1.25	20	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.5
1.5	24	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8
1.75	28	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
2.0	32	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2.25	36	0.8	1.0	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	2.3	2.5	2.6	2.8
2.5	40	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9	3.1
2.75	44	1.0	1.2	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2	3.4
3.0	48	1.1	1.3	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.5	3.7
3.25	52	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
3.5	56	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.3
3.75	60	1.4	1.6	1.8	2.1	2.3	2.5	2.8	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6
4.0	64	1.5	1.7	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
4.25	68	1.6	1.8	2.1	2.3	2.6	2.9	3.1	3.4	3.6	3.9	4.2	4.4	4.7	4.9	5.2
4.5	72	1.7	1.9	2.2	2.5	2.8	3.0	3.3	3.6	3.9	4.1	4.4	4.7	5.0	5.2	5.5

Nurseries, greenhouses, shadehouses, and ornamental plants

Spray application: Mix 0.5 to 6 quarts of CX-9032 per 100 gallons of water and apply as a foliar spray of sufficient volume to wet the entire plant with minimal runoff. Begin preventative applications at plant emergence and repeat every 3-28 days as needed (every 3-7 days if disease pressure is high or environmental conditions are highly favorable to disease outbreak, 10-28 days under low pressure or less conducive conditions).

Drench application: Mix 0.5 to 4.5 pints of CX-9032 per 100 gallons of water and apply as a drench or coarse spray to soil or other growing media in pots, flats, plugs, trays, or planting beds, for control or suppression of soilborne diseases of seedlings, cuttings, bedding plants, and transplants (including vegetables and other transplanted food crops). Make first application at or immediately before seeding, sticking, germination, or transplanting. Repeat applications every 14-28 days as needed. Transplants can be treated immediately before transplanting into field soils to protect against damping-off and other diseases that reduce plant establishment.

Cutting or root dip: Dip basal end of cuttings or bare roots (individually or in bunches) in a suspension of 1 to 2 pints of CX-9032 per gallon of water. Immerse for 5-10 seconds immediately before planting.

Chemigation: Mix 0.5 to 4.5 pints of CX-9032 per 100 gallons of water and apply via drip, handheld, or sprinkler irrigation systems. Refer to "Chemigation Instructions" for more details.

CROPS/USE SITES	DISEASES/PATHOGENS
Indoor, outdoor, and shade- or other cover-grown ornamental trees and shrubs, flowering plants, foliage plants, tropical plants, potted plants, potted or cut flowers, bedding plants, forestry seedlings, conifer production for reforestation, fruit trees, vegetables and other crops grown in greenhouses or nurseries.	<p>Powdery mildews caused by <i>Erysiphe</i>, <i>Podosphaera</i>, <i>Sphaerotheca</i>, <i>Oidium</i>, and <i>Golovinomyces</i> spp.</p> <p>Anthrachnose (<i>Colletotrichum</i> spp.)</p> <p>Bacterial leaf spots caused by <i>Erwinia</i>, <i>Pseudomonas</i>, and <i>Xanthomonas</i> spp.</p> <p>Damping-off disease (<i>Rhizoctonia</i>, <i>Pythium</i>, <i>Fusarium</i> spp.)</p> <p>Late blight, blackeye, and root rots caused by <i>Phytophthora</i> spp.</p> <p>Gray mold and blight caused by <i>Botrytis cinerea</i></p> <p>Black root rot (<i>Aspergillus</i> spp.)</p> <p>Black spot of roses (<i>Diplocarpon rosae</i>)</p> <p>Downy mildew (<i>Peronospora</i> spp.)</p> <p>Leaf spots caused by <i>Alternaria</i>, <i>Septoria</i>, <i>Cercospora</i>, <i>Entomosporium</i>, <i>Helminthosporium</i>, and <i>Myrothecium</i> spp.)</p> <p>Rust (<i>Puccinia</i> spp.)</p> <p>Scab (<i>Venturia</i> spp.)</p> <p>Root rot, bottom rot, or stem rot caused by <i>Rhizoctonia solani</i></p> <p><i>Sclerotinia</i> blight</p> <p><i>Fusarium</i> wilts</p>

Turfgrass application

For control of foliar diseases, apply CX-9032 at 1 to 4 fluid ounces per 1,000 square feet as a ground-directed spray in sufficient water to provide thorough coverage. To control root and crown diseases in or on the soil, immediately follow the spray with sufficient overhead sprinkler irrigation to move the product into the root zone.

USE SITES/CROPS	DISEASES/PATHOGENS
<p>Turf, sod, lawns, golf course (fairways, roughs, greens, tees), grass seed production</p> <p>Including but not limited to:</p> <p>Bluegrass, Bentgrass, Bermudagrass (common & hybrid), Dichondra, Fescue, Orchardgrass, <i>Poa annua</i>, St. Augustine grass, Ryegrass, <i>Zoysia</i>, mixtures, and other grasses or ornamental turf</p>	<p>Anthrachnose (<i>Colletotrichum graminicola</i>)</p> <p>Brown patch (<i>Rhizoctonia solani</i>)</p> <p>Dollar spot (<i>Lanzia</i> and <i>Moellerodiscus</i> spp., formerly <i>Sclerotinia homeocarpa</i>)</p> <p>Powdery mildew (<i>Erysiphe graminis</i>)</p> <p>Rust (<i>Puccinia</i> spp.)</p> <p>Gray leaf spot (<i>Pyricularia grisea</i>)</p> <p>"Damping off" or seedling blights caused by <i>Pythium</i></p>

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep unprotected persons out of treated areas until sprays have dried.

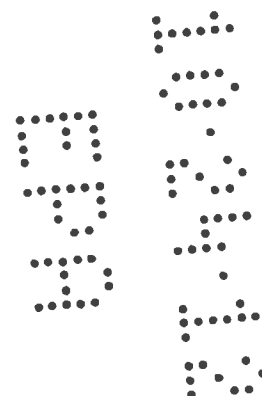
STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of onsite or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.



CHEMIGATION INSTRUCTIONS

General information:

Apply this product only through drip (trickle) irrigation (including micro-irrigation through spaghetti tubes or individual tubes) or sprinkler irrigation (including impact or microsprinklers, microjet, overhead boom, water gun, solid set, lateral move, end tow, side-roll, center pivot, or hand move, including mist-type systems); or with hand-held calibrated irrigation equipment (such as a hand-held wand with injector). Do not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and injector system and flush with clean water before use. Failure to provide a clean tank, free of scale or residues may reduce effectiveness of this product.

Drip (trickle) and micro-irrigation chemigation

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.

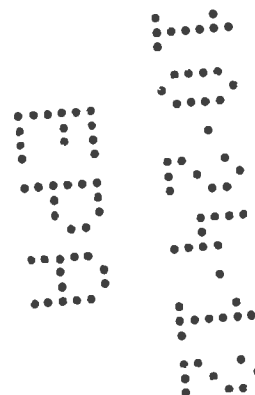
Sprinkler chemigation:

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

WARRANTY

Certis USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purpose referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the disease problem, condition of the crop, incompatibility with other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage, or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.



MASTER LABEL
SUBLABEL B: Residential Use

OMRI placeholder

CX-9032

Aqueous Suspension Biofungicide/Bactericide for control of plant diseases in home gardens: vegetables, ornamental and fruit trees, shrubs, lawns, flowers, bedding plants, and potted ornamental plants

FOR ORGANIC GARDENING

Active Ingredient:

Bacillus amyloliquefaciens strain D747* 98.85 %

Other Ingredients 1.15 %

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS:

Lot No.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS (AND DOMESTIC ANIMALS): CAUTION:

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor. Hot Line No.: 1-800-255-3924 for additional information

ENVIRONMENTAL HAZARDS:

To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Mixing instructions:

CX-9032 must be mixed with water and applied as a spray to fruit and foliage, or as a drench to plant roots. See below for specific mix rate information.

Application rates and methods:

Spray application for control of powdery mildews, leaf spots, anthracnose, gray mold, and other diseases affecting leaves, flowers, fruit, and other above-ground plant parts of home garden plants: Mix 1 teaspoon of CX-9032 per gallon of water and apply directly to plants using a hand pump sprayer or other suitable spray equipment. Spray just enough to wet all leaves and fruit with minimal run-off or dripping. Total coverage depends on the size of plants to be sprayed and the type of sprayer used. Repeat as needed to maintain disease control, typically every 7-10 days. If disease is prevalent or environmental conditions such as high humidity favor disease outbreak, increase the mixing rate to 1 tablespoon per gallon and shorten the interval between sprays to every 3-7 days.

Drench application for control of diseases affecting plant roots, tubers, or other parts of plants in contact with soil in the home garden: Mix 1 teaspoon of CX-9032 per gallon of water and apply to the soil by one of the following methods:

1. For potted plants (indoors or outdoors), apply in sufficient water to wet the entire root mass using a watering can or tank-fed watering wand. Do not water plants again until 24 hours after application. Alternatively, use a hand-pump or other sprayer to spray the mixture on the soil surface in each pot, then immediately apply sufficient water to move the product into the roots.

2. Drench the roots of transplants with approx. 4 fluid ounces of the mixture immediately before transplanting into pots or garden soil. Allow to soak into the root ball before transplanting.
3. For outdoor-grown plants, use a watering can or sprayer to drench the soil in the planting furrow or transplant hole immediately before planting or transplanting. The amount of water required will depend on the size of the hole or length of furrow.
4. Alternatively, apply in the first watering after planting or transplanting, either by mixing directly into the water at the rate indicated above, or by spraying onto the soil surface at the base of each plant and immediately watering in with a watering can, hose, sprinkler, or other watering device.

CX-9032 can be applied up to and including the day of harvest.

For application to lawns and other grass areas: Mix 1 teaspoon of CX-9032 per gallon of water and apply as a fine spray to the surface of the lawn or grass area. Total amount of mix required will depend on the type of sprayer used and area to be covered, but typically 2 to 5 gallons of spray mix may be required per 1,000 square feet of lawn. CX-9032 can be "watered in" for control of soilborne root and crown diseases by thorough watering immediately after application either with sprinklers or by spraying just before or during light rain.

STORAGE AND DISPOSAL

PESTICIDE STORAGE:

Keep in original container. Store away from direct sunlight, feed, or foodstuffs. Keep container tightly sealed when not in use.

PESTICIDE DISPOSAL AND CONTAINER HANDLING

Non-refillable container. Do not reuse or refill container.

If empty:

Place in trash or offer for recycling, if available.

If partly filled:

Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY

Certis USA L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the insect problem, condition of the crop, incompatibility with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

EPA National Organic Program Labeling Request Checklist

Reviewer Name: Chris Pfeifer

RAL: Susanne Cerrelli

Product Name: CX 9032 (EPA Reg. No. 70051-RNT (107))

Completion Date: 8/15/12

Determination: Permitted

Receipt Date: 9/30/11

#	Check list Item	Yes	No
1	Active Ingredients - Are all of the active ingredient(s) " <i>Allowed</i> " on the National List ?	Y	
2	Active Ingredients History - Is the active ingredient on the BPPD list of previous NOP approvals (f:/USER/SHARE/BPPD/Organic/Copy of NOP/allowableble.pdf or ALLOWED.xls)?	Y	
3	Inert Ingredients - Are all of the inert(s) found on the August 2004 EPA list 4A and 4B ?	Y	
4	Inert Ingredients - Have any inert(s) been recently revoked (Revoked List 4 Inerts)?		N
5	Use Sites - Are all the product's use sites within the scope of the designated use patterns cited in the <i>National List</i> ?	Y	
6	Language - Is the requested label language allowable. (Acceptable language includes: " <i>For Use in Organic Production</i> "; " <i>For Organic Production</i> "; " <i>For Use in Organic Gardening</i> "; " <i>For Organic Gardening</i> "; " <i>OMRI Listed</i> "; the OMRI logo; and the three leaf EPA NOP Logo .)	Y	
7	OMRI Certification - Does the application have a current OMRI certificate?	Y	
8	<p>Comments -</p> <p>#1) The ai is approved for organic use. The source of ai is not GM. There are no intentionally added ingredients in the ai source that are not consumed or accounted for; and none of the impurities are of toxicological significance.</p> <p>#2) The inert ingredients are all List 4 and NOP compliant. Acceptable MSDS were provided for all inert ingredients; and the composition of the mixtures were validated in OPPIN.</p> <p>#3) The use sites for the agricultural sublabel are all pre-harvest agricultural, and are acceptable per the Organic Production Standard. The use sites for the home garden sublabel are all plant-based and are acceptable per the Organic Gardening Standard.</p> <p>#4) The label claims "For Organic Production" and "OMRI Listed" are appropriate for the use pattern on the agricultural sublabel. The label claims "For Organic gardening" and "OMRI Listed" are appropriate for the use pattern on the residential use sublabel.</p> <p>#5) A valid OMRI certificate has been provided.</p> <p>Permit NOP labeling of this product.</p>		

This review contains **CONFIDENTIAL BUSINESS INFORMATION (CBI)**. Do not release this document to the registrant if it contains confidential information on proprietary mixes.

Program Links - National Organic Program ([AMS - NOP](#)); PR Notice 2003-1 ([PR Notice 2003-1](#))

BPPD Guidance Document - Other Items May be Required



OMRI Listed®

The following product is OMRI Listed. It may be used in certified organic production or food processing and handling according to the USDA National Organic Program Rule.

Product

Double Nickel LC Biofungicide

Company

Certis USA

Ms. Christine Dively

9145 Guilford Rd, Suite 175

Columbia, MD 21046-1952

Status

Allowed with Restrictions

Category

Microbial Pesticides

Issue Date

10-May-12

Product number

ttc-2981

Class

Crop Pest, Weed, and Disease Control

Expiration Date

01-Jun-2013

Restrictions

May be used for pesticidal purposes only if the requirements of 205.206(e) are met, which requires the use of preventative, mechanical, physical, and other pest, weed, and disease management practices.

Executive Director

Product review is conducted according to the policies in the current OMRI Policy Manual and based on the standards in the current OMRI Standards Manual. To verify the current status of this or any OMRI Listed product, view the most current version of the OMRI Products List at www.omri.org. OMRI listing is not equivalent to organic certification and is not a product endorsement. It cannot be construed as such. Final decisions on the acceptability of a product for use in a certified organic system are the responsibility of a USDA accredited certification agent. It is the operator's responsibility to properly use the product, including following any restrictions.



Organic Materials Review Institute

P.O. Box 11558, Eugene, OR 97440-3758, USA

541.343.7600 • fax 541.343.8971 • info@omri.org • www.omri.org

OMRI LISTED 201204261214



Certis USA
9145 Guilford Road
Suite 175
Columbia, MD 21046
(301) 604-7340
Fax: 301-604-7015
www.certisusa.com

Hand-Delivered

March 22, 2012

Sheryl Reilly, Ph.D., Chief
Microbial Pesticides Branch
Biopesticides & Pollution Prevention Division (7504P)
Office of Pesticide Programs
US Environmental Protection Agency

**Re: Certis U.S.A., L.L.C.
Submission of Final Printed Labels**

Dear Dr. Reilly;

On behalf of Certis U.S.A., L.L.C. (9145 Guilford Road, Suite 175, Columbia, Maryland 21046), I respectfully submit final printed labels for the following products:

- PFR-97 20% WDG EPA Registration No. 70051-19
- Double Nickel LC EPA Registration No. 70051-107
- Double Nickel 55 EPA Registration No. 70051-108

Enclosed are EPA Form 8570-1 and two copies of the final printed label for each product.

Please do not hesitate to contact me if you have any questions about this submission. I can be reached by telephone at 301-483-3806 or by email at cdively@certisusa.com.

Sincerely,


Christine A. Dively
Director of Regulatory Affairs
Certis USA

Enclosure



United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☐ Amendment
☒ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 70051-107	2. EPA Product Manager Reynolds	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Double Nickel LC	PM# Microbial Pesticides Branch	
5. Name and Address of Applicant (Include ZIP Code) Certis USA, L.L.C. 9145 Guilford Road, Suite 175 Columbia Maryland 21046 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: + EPA Reg. No. _____ Product Name _____	

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input checked="" type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of final printed labels per PR Notice 98-10.

"This notification is consistent with the provisions of PR Notice 98-10 and EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA."

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal	
* Certification must be submitted				<input type="checkbox"/> Plastic	
If "Yes" Unit Packaging wgt. No. per container		If "Yes" Package wgt. No. per container		<input type="checkbox"/> Glass	
				<input type="checkbox"/> Paper	
				<input type="checkbox"/> Other (Specify) _____	
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 2.5G		5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed to Product <input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled				<input type="checkbox"/> Other _____	

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name Christine A. Dively		Title Director of Reg. Affairs	
		Telephone No. (Include Area Code) 301-483-3806	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.			6. Date Application Received (Stamped)
2. Signature <i>Christine A. Dively</i>		3. Title Director of Regulatory Affairs	
4. Typed Name Christine A. Dively		5. Date March 22, 2012	

DoubleNickel™ LC

BIOFUNGICIDE

Aqueous Suspension Biofungicide/Bactericide

FOR ORGANIC PRODUCTION

ACTIVE INGREDIENT:

Bacillus amyloliquefaciens strain D747*98.85%

OTHER INGREDIENTS:1.15%

TOTAL100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

KEEP OUT OF REACH OF CHILDREN
CAUTION

FIRST AID

If on skin: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If in eyes: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product label with you when calling a poison control center or doctor.

Hot Line No.: 1-800-255-3924 for additional information

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS CAUTION

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco and using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow manufacturer's instructions for cleaning and maintaining PPE. If no instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides, the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticides get inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For Terrestrial Uses: Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

GENERAL INFORMATION

Double Nickel™ LC is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of Double Nickel™ LC is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. Double Nickel™ LC also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

Double Nickel™ LC can be applied alone or in combination and/or rotation with chemical fungicides as a tool for integrated disease management in agricultural crops, ornamental and nursery plants, and turfgrass. Double Nickel™ LC offers a valuable tool for management of resistance to chemical fungicides through its multiple and unique modes of action.

Double Nickel™ LC can be applied up to and including the day of harvest.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is: coveralls, waterproof gloves, shoes plus socks.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

MIXING AND HANDLING INSTRUCTIONS

Mix the required amount of Double Nickel™ LC in water with sufficient agitation to maintain a uniform suspension in the spray or mixing tank. Tank should be cleaned prior to use. Do not use highly alkaline or highly acidic water to mix sprays. Use a buffering agent if necessary to maintain neutrality (pH 6 to 8) of water in the tank. Maintain agitation during application. Apply immediately after mixing; do not allow spray mix to stand overnight.

Double Nickel™ LC can be mixed and used with other agricultural chemicals for which such mixing is permitted by the product labels, in accordance with the most

Complies with
EPA Accepted Labeling
JUL 25 2012

Date:

Reviewer:

Net Contents: 2.5 Gallons
EPA Reg. No. 70051-107
EPA Est. No. 70051-CA-001

Manufactured by
Certis USA, L.L.C.
9145 Guilford Road
Suite 175
Columbia, MD 21046

CERTIS

restrictive of those label limitations and precautions. If such a mixture is planned, a compatibility "jar test" should first be conducted by mixing the correct proportions of Double Nickel™ LC and these products in a small volume of water.

APPLICATION METHODS

Ground: Double Nickel™ LC can be applied in most commonly-used ground application equipment, such as (but not limited to): tractor-mounted boom, airblast, high clearance, hose-end, backpack, and other pressurized sprayers; hose-end or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method.

Aerial: Double Nickel™ LC can be applied by fixed or rotary winged aircraft in a minimum of 3 gallons of water per acre. Standard precautions should be taken to minimize spray drift.

Chemigation: Double Nickel™ LC can be applied through drip (trickle) and sprinkler type irrigation equipment. Refer to the section entitled "Chemigation Instructions" for detailed instructions.

Agricultural crops

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Vegetables and melons	
Brassica vegetables such as broccoli, cabbage, cauliflower, Brussels sprouts, kohlrabi, and other cole crops.	Pin rot complex (<i>Alternaria/Xanthomonas</i>)* Leaf spots (<i>Alternaria</i> spp., <i>Xanthomonas</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe polygoni</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Bulb vegetables such as onions, garlic, shallots, and others.	<i>Botrytis</i> spp. (neck rot, leaf blight) Purple blotch (<i>Alternaria</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Rust (<i>Puccinia porii</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Cucurbits such as cucumbers, squash (all types), cantaloupes, muskmelons, watermelons, and other melons.	Powdery mildew (<i>Erysiphe</i> and <i>Sphaerotheca</i> spp.) Downy mildew (<i>Pseudoperonospora</i> spp.) Gummy stem blight (<i>Didymella bryoniae</i> and <i>Phoma cucurbitacearum</i>) See instructions below for "Soil application" against the following diseases: Vine decline (<i>Monosporascus cannonballus</i>) Charcoal rot (<i>Macrophomina phaseoli</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Fruiting vegetables such as tomatoes, peppers, eggplant, tomatillo, okra, and others.	Bacterial spot (<i>Xanthomonas</i> spp.)** Bacterial speck (<i>Pseudomonas syringae</i> pv. <i>tomato</i>)** Gray mold (<i>Botrytis cinerea</i>) Powdery mildew * (<i>Leveillula</i> , <i>Oidiopsis</i> , <i>Erysiphe</i> , and <i>Sphaerotheca</i> spp.) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Southern blight (<i>Sclerotium rolfsii</i>)*
Leafy vegetables such as head and leaf lettuce, celery, spinach, radicchio, arugula, watercress, and others (including leafy <i>Brassica</i> vegetables such as mustard and collard greens, kale, bok choy, and related crops).	Downy mildew (<i>Bremia lactucae</i> , <i>Peronospora</i> spp.)* Powdery mildew (<i>Golovinomyces</i> (<i>Erysiphe</i>) <i>cichoracearum</i>)* Bacterial blights Head and leaf drop (<i>Sclerotinia</i> spp.) ² Pink rot (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> spp.) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Bottom rot (<i>Rhizoctonia solani</i>)

(continued)

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Vegetables and melons (continued)	
Legume vegetables succulent and dried beans and peas such as green, snap, shell, and Lima beans, garbanzo beans, chickpeas, soybeans, dry beans, peas, split peas, lentils, and other legumes.	White mold (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Microsphaera diffusa</i>) Rusts , including <i>Uromyces appendiculatus</i> , <i>Puccinia</i> spp., and Asian soybean rust (<i>Phayospora pachyrhizi</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Root, tuber, and corn vegetables such as potato, sweet potato, carrot, cassava, beets, ginger, radish, horseradish ²² , ginseng, turnip, and other root, tuber and corn crops.	Black root/crown rot (<i>Alternaria</i> spp.) Bacterial leaf blight (<i>Xanthomonas campestris</i>) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Gray mold (<i>Botrytis</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Black leg/bacterial soft rot (<i>Erwinia carotovora</i>) Early blight (<i>Alternaria solani</i>) Late blight (<i>Phytophthora infestans</i>) See instructions below for "Soil application" against the following diseases: Black scurf (<i>Rhizoctonia solani</i>) Cavity spot (<i>Pythium</i> spp.) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Other vegetables such as sweet corn, popcorn, asparagus, peanut, and watercress	<i>Botrytis</i> spp. Rusts (<i>Puccinia</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> and <i>Cercosporidium</i> spp.)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tree fruits and nuts	
Citrus such as orange, lemon, lime, grapefruit, tangerine (mandarin), tangelo, pummelo, and other citrus	Alternaria leaf spot (<i>Alternaria alternata</i>) Postbloom fruit drop (<i>Colletotrichum acutatum</i>)* Greasy spot (<i>Mycosphaerella citri</i>) ³ Citrus canker (<i>Xanthomonas campestris</i> pv. <i>citri</i>) ¹ Scab (<i>Elsinoe fawcettii</i>) ⁴ Melanose (<i>Diaporthe citri</i>) ⁵
Pome fruits such as apple, pear, crabapple, quince, and others	Powdery mildew (<i>Podosphaera leucotricha</i>) ⁶ Scab (<i>Venturia</i> spp.)* Flyspeck (<i>Zygophiala jamaicensis</i>) ⁶ Sooty blotch disease complex ⁶ Brooks spot (<i>Mycosphaerella pomii</i>) ⁶ Bot rot/white rot (<i>Botryosphaeria dothidea</i>) ⁶ Bitter rot (<i>Colletotrichum</i> spp.) ⁶ Cedar apple rust (<i>Gymnosporangium juniperi-virginianae</i>) ⁶ Fire blight (<i>Erwinia amylovora</i>) ⁷
Stone fruits such as apricot, cherry, nectarine, peach, plum, prune, pluot, and others	Powdery mildew (<i>Sphaerotheca</i> and <i>Podosphaera</i> spp.) ⁸ Bacterial canker (<i>Pseudomonas</i> spp.) Brown rot blossom blight (<i>Monilinia laxa</i>) ⁹ Brown rot (<i>Monilinia fructicola</i>) ¹⁰ Gray mold (<i>Botrytis cinerea</i>) ¹⁰ Peach leaf curl (<i>Taphrina deformans</i>) Bacterial leaf spot (<i>Xanthomonas arboricola</i> pv. <i>pruni</i>) ¹ Rusty spot (<i>Podosphaera leucotricha</i>) ¹
Tree nuts such as almond, pistachio, pecan, walnut, filbert, hazelnut, chestnut, macadamia, and other tree nuts.	Walnut blight (<i>Xanthomonas campestris</i>) ¹¹ Anthrax (<i>Colletotrichum acutatum</i>) Bacterial canker (<i>Pseudomonas syringae</i>) Shot hole (<i>Wilsonomyces carpophilus</i>) Brown rot (<i>Monilinia</i> spp.)* Pecan scab (<i>Cladosporium caryigenum</i>) ¹
Pomegranates	Leaf and fruit spots (<i>Cercospora</i> , <i>Gloeosporium</i> and <i>Pestalotia</i> spp.) ¹ Fruit rots (<i>Alternaria</i> , <i>Botrytis</i> , and other spp.) ¹⁰ Powdery mildew (<i>Sphaerotheca pannosa</i>)

(continued)

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Other fruits	
Strawberry	Powdery mildew (<i>Sphaerotheca macularis</i> , <i>Erysiphe</i> spp.) ^{1,2} Gray mold (<i>Botrytis cinerea</i>) ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>) Angular leaf spot (<i>Xanthomonas fragariae</i>) ¹ For the following diseases, see instructions below for "Soil application" (and also root dip instructions ²²): "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. Charcoal rot (<i>Macrophomina phaseolina</i>)
Berries , including blueberry, blackberry, raspberry, loganberry, huckleberry, gooseberry, elderberry, cranberry (non-flooded fields), currant, and other berries	Mummy berry (<i>Monilinia vaccinii-corymbosi</i>) [*] Botrytis blight (<i>Botrytis cinerea</i>) Bacterial canker (<i>Pseudomonas</i> spp.) ¹³ Anthracnose fruit rot (<i>Colletotrichum acutatum</i>) ¹⁰
Grapes including wine grapes, table grapes, and raisins	Powdery mildew (<i>Erysiphe</i> (formerly <i>Uncinula</i>) <i>necator</i>) ¹⁴ Gray mold (<i>Botrytis cinerea</i>) ¹⁵ Sour rot complex ¹⁵ Downy mildew (<i>Plasmopara viticola</i>) [*] Phomopsis (<i>Phomopsis viticola</i>) ¹⁶ Eutypa (<i>Eutypa lata</i>) ¹⁷
Tropical fruits such as avocado ¹⁸ , mango ¹⁸ , papaya ¹⁹ , pineapple ¹⁹ , banana, plantain, and others.	Anthracnose (<i>Colletotrichum</i> spp.) Scab (<i>Sphaceloma perseeae</i>) Bacterial canker (<i>Xanthomonas campestris</i>) Sigatoka (<i>Mycosphaerella fijiensis</i>) ²⁰
Other Crops	
Herbs and spices such as basil, thyme, coriander, dill, cilantro, parsley, mint, and others.	Powdery mildews (<i>Oidium</i> spp. and others) Downy mildews (<i>Peronospora</i> spp. and others) [*] Damping off diseases (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Alternaria</i> , and <i>Fusarium</i> spp.) Leaf spots (<i>Alternaria</i> , <i>Septoria</i> , <i>Colletotrichum</i> , and <i>Cercospora</i> spp.) [*] Bacterial diseases (<i>Erwinia</i> , <i>Xanthomonas</i> , and <i>Pseudomonas</i> spp.) Rusts (<i>Puccinia</i> spp. and others) "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Coffee	Coffee berry disease (<i>Colletotrichum coffeanum</i>) ¹ Coffee rust (<i>Hemileia vastatrix</i>) ¹ Anthracnose (<i>Colletotrichum</i> spp.) Botrytis flower blight Cercospora leaf spot and berry blotch "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tobacco	Angular leaf spot (<i>Pseudomonas</i> spp.) Anthracnose (<i>Colletotrichum</i> and <i>Glomerella</i> spp.) Blue mold or downy mildew (<i>Peronospora</i> spp.) [*] Brown spot (<i>Alternaria</i>) Barn spot/ frog-eye leaf spot (<i>Cercospora nicotianae</i>) ¹⁰ Collar rot (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Erysiphe cichoracearum</i>) Target spot (<i>Rhizoctonia solani</i>) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Oidium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Charcoal rot (<i>Macrophomina phaseolina</i>) Black root rot (<i>Thielaviopsis basicola</i>) Black shank (<i>Phytophthora</i> spp.) [*] Southern blight/southern stem rot (<i>Sclerotium rolfsii</i>) [*]

(continued)

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Other Crops	
Mint	Rust (<i>Puccinia</i> spp.)
Hops	Powdery mildew (<i>Sphaerotheca macularis</i>) ^{2*}
Footnotes: [*] Suppression only; for improved control mix or rotate with chemical fungicide approved for such use. ¹ Tank mix or rotate with copper-based fungicides at label rates for improved control. ² Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist. ³ For greasy spot suppression, apply at first new foliar flush and repeat with each new flush. Tank mix with spray oil or copper based fungicide at labeled rates. ⁴ For suppression of citrus scab, start applications at first new foliage flush and repeat at petal fall and when fruit are 1/2 inch in diameter. ⁵ Make first application at or before tight cluster if conditions favor disease development. Repeat at 7-10 day intervals through the second cover spray or longer on susceptible varieties or if environmental conditions favor rapid disease development. ⁶ Begin applications before bloom when environmental conditions favor disease development, repeating at 7 to 14 day intervals or as needed. Control may be enhanced by addition of a surfactant to improve spray coverage. Use only surfactants known to be safe for use on the crop and for which such use is allowed. ⁷ Rotate with antibiotics registered for fire blight control for improved performance. Begin applications at 1-5% open blossoms and repeat every 3-7 days as necessary until petal fall, when intervals can be increased to 7 days. Double Nickel™ LC can also be used in summer "cover spray" applications to control the shoot blight phase of fire blight and summer diseases. Can be mixed with copper fungicides to improve control. ⁸ Make first application at popcorn stage and repeat every 7 days. ⁹ Start applying at early bloom stage and repeat every 7 days through petal fall. ¹⁰ Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections. ¹¹ Begin applications at or before pistillate bloom, repeating every 7-10 days. Apply before rainfall if possible, and tank mix or rotate with a copper-based bactericide registered for such use for improved control. ¹² Start applications at or just before flowering and repeat every 7-10 days as needed through harvest. ¹³ Apply before fall rains and again during dormancy before spring growth. ¹⁴ Start applications when new shoots are 1/2 to 1 1/2 inches long. Repeat at 3-5 inches, 8-10 inches, and then at 7-10 day intervals until disease conditions no longer exist. ¹⁵ Apply at bloom, before bunch closure, at veraison, and before harvest. ¹⁶ Apply when shoots are 1/2 to 1 inch long and again when 6-8 inches long. ¹⁷ Mix 2 fluid ounces Double Nickel™ LC per gallon of water and apply to pruning wounds. ¹⁸ Apply at budbreak and repeat on 14-21 day interval as needed through harvest. ¹⁹ Apply at flowering and repeat on 14-21 day interval as needed through harvest. ²⁰ Apply at first appearance of leaves and repeat at 7-21 day intervals as needed, in sufficient water to obtain thorough coverage of foliage. Tank mix with spray oil or other registered fungicides for improved control. ²¹ Mix 6 to 10 fluid ounces Double Nickel™ LC per 100 gallons of water and apply in minimum of 20 gallons per acre from emergence to training, 50 gallons per acre from training to wire, and 100 gallons per acre from wire touch through harvest. ²² For treatment of horseradish or strawberry roots immediately before transplanting: immerse bare roots (individually or in bunches) for 10 seconds in a suspension of 1 to 2 pints Double Nickel™ LC per gallon of water.	

Foliar application: For control of diseases on foliage, flowers, fruit, or other above-ground parts of plants: Mix Double Nickel™ LC in water and apply as a spray at a rate of 0.5 to 6 quarts of Double Nickel™ LC per acre in sufficient water to achieve thorough coverage of the crop canopy with minimal runoff. Begin applications at crop emergence, transplanting, or when conditions are conducive to development of disease. Repeat application every 3 to 10 days, or as needed, for as long as conditions favor disease development. Lower rates (0.5 to 2 quarts per acre) may be applied under light disease pressure, to smaller (e.g. newly-emerged) plants, or when Double Nickel™ LC is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (3-6 quarts/acre), apply more frequently (every 3-7 days), and mix or rotate Double Nickel™ LC with other fungicides for improved performance.

Soil application: For control of soilborne diseases infecting seeds, seedlings, roots, crown, stems, or other plant parts below ground or in contact with soil: Apply Double Nickel™ LC at 0.5 to 4.5 pints per acre. Mix the required amount in sufficient water to apply by one of the following methods:

- Soil drench applied to transplants in flats or pots in the greenhouse or nursery any time prior to transplanting (see additional drench instructions under "Nurseries, greenhouses, shade houses, and ornamental plants" below).
- Soil drench at transplanting, using a "water wheel" injector, spray nozzles/hoses, or other method to drench each root ball and/or planting hole.
- Soil or seedline drench, or banded spray (in-furrow) at planting. See the section on "Banded (in-furrow) application" below for additional instructions.

Follow-up (post-planting) preventative applications can be made every 2-4 weeks by one or more of the following methods, if needed:

- Drip (trickle) or any type of sprinkler irrigation, any time after planting or transplanting. See Chemigation Instructions for additional information.
- Spray directly onto the soil surface and/or lower plant parts. If targeting root disease, follow immediately with sufficient overhead sprinkler irrigation to move Double Nickel™ LC to the root zone.
- Injection directly into the rooting zone using shanks or similar equipment.

Lower rates (0.5 to 2 pints of Double Nickel™ LC per acre) may be applied under light disease pressure, to smaller plants, or when Double Nickel™ LC is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to

rapid disease development, use higher label rates (2 - 4.5 pints per acre), apply more frequently (every 2 weeks), and mix or rotate Double Nickel™ LC with other fungicides for improved performance.

Banded (in-furrow) application: Use the table below (rate Double Nickel™ LC per acre) to determine the correct application rate in fluid ounces per 1,000 row feet based on row spacing and desired rate per acre. Mix the required amount of Double Nickel™ LC in water and apply as banded spray (4" to 6" wide) or seedline drench centered over the planting furrow. Apply directly over seeds in the furrow just before they are covered with soil. The volume of water required per acre or per 1,000 row feet will depend on the application equipment used. Consult your local cooperative extension service if you need assistance calibrating band spraying equipment.

Rates for banded (in-furrow) application: Find desired application rate of Double Nickel™ LC per acre in the left column. Read across that line to the correct row spacing indicated at the top to find the number of fluid ounces per 1,000 row feet that will provide the desired application rate per acre.

Double Nickel™ LC rate/acre		Space between rows (inches)														
Pints	fl oz	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
0.5	8	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
0.75	12	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
1.0	16	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.9	1.0	1.0	1.1	1.2	1.2
1.25	20	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.5
1.5	24	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8
1.75	28	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
2.0	32	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2.25	36	0.8	1.0	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	2.3	2.5	2.6	2.8
2.5	40	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9	3.1
2.75	44	1.0	1.2	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2	3.4
3.0	48	1.1	1.3	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.5	3.7
3.25	52	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
3.5	56	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.3
3.75	60	1.4	1.6	1.8	2.1	2.3	2.5	2.6	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6
4.0	64	1.5	1.7	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
4.25	68	1.6	1.8	2.1	2.3	2.6	2.9	3.1	3.4	3.6	3.9	4.2	4.4	4.7	4.9	5.2
4.5	72	1.7	1.9	2.2	2.5	2.8	3.0	3.3	3.6	3.9	4.1	4.4	4.7	5.0	5.2	5.5

Nurseries, greenhouses, shadehouses, and ornamental plants

Spray application: Mix 0.5 to 6 quarts of Double Nickel™ LC per 100 gallons of water and apply as a foliar spray of sufficient volume to wet the entire plant with minimal runoff. Begin preventative applications at plant emergence and repeat every 3-28 days as needed (every 3-7 days if disease pressure is high or environmental conditions are highly favorable to disease outbreak, 10-28 days under low pressure or less conducive conditions).

Drench application: Mix 0.5 to 4.5 pints of Double Nickel™ LC per 100 gallons of water and apply as a drench or coarse spray to soil or other growing media in pots, flats, plugs, trays, or planting beds, for control or suppression of soilborne diseases of seedlings, cuttings, bedding plants, and transplants (including vegetables and other transplanted food crops). Make first application at or immediately before seeding, sticking, germination, or transplanting. Repeat applications every 14-28 days as needed. Transplants can be treated immediately before transplanting into field soils to protect against damping-off and other diseases that reduce plant establishment.

Cutting or root dip: Dip basal end of cuttings or bare roots (individually or in bunches) in a suspension of 1 to 2 pints of Double Nickel™ LC per gallon of water. Immerse for 5-10 seconds immediately before planting.

Chemigation: Mix 0.5 to 4.5 pints of Double Nickel™ LC per 100 gallons of water and apply via drip, handheld, or sprinkler irrigation systems. Refer to "Chemigation Instructions" for more details.

CROPS/USE SITES	DISEASES/PATHOGENS
Indoor, outdoor, and shade- or other cover-grown ornamental trees and shrubs, flowering plants, foliage plants, tropical plants, potted plants, potted or cut flowers, bedding plants, forestry seedlings, conifer production for reforestation, fruit trees, vegetables and other crops grown in greenhouses or nurseries.	Powdery mildews caused by <i>Erysiphe</i> , <i>Podosphaera</i> , <i>Sphaerotheca</i> , <i>Oldium</i> , and <i>Golovinomyces</i> spp. Anthracooses (<i>Colletotrichum</i> spp.) Bacterial leaf spots caused by <i>Erwinia</i> , <i>Pseudomonas</i> , and <i>Xanthomonas</i> spp. Damping-off disease (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> spp.) Late blight, blackeye, and root rots caused by <i>Phytophthora</i> spp. Gray mold and blight caused by <i>Botrytis cinerea</i> Black root rot (<i>Aspergillus</i> spp.) Black spot of roses (<i>Diuraphis rosae</i>) Downy mildew (<i>Peronospora</i> spp.) Leaf spots caused by <i>Alternaria</i> , <i>Septoria</i> , <i>Carpospora</i> , <i>Entomosporium</i> , <i>Helminthosporium</i> , and <i>Myrothecium</i> spp.) Rust (<i>Puccinia</i> spp.) Scab (<i>Venturia</i> spp.) Root rot, bottom rot, or stem rot caused by <i>Rhizoctonia solani</i> Sclerotinia blight <i>Fusarium</i> wilts

Turfgrass application

For control of foliar diseases, apply Double Nickel™ LC at 1 to 4 fluid ounces per 1,000 square feet as a ground-directed spray in sufficient water to provide thorough coverage. To control root and crown diseases in or on the soil, immediately follow the spray with sufficient overhead sprinkler irrigation to move the product into the root zone.

CROPS/USE SITES	DISEASES/PATHOGENS
Turf, sod, lawns, golf course (fairways, roughs, greens, tees), grass seed production Including but not limited to: Bluegrass, Bentgrass, Bermudagrass (common & hybrid), Dichondra, Fescue, Orchardgrass, Poa annua, St. Augustine grass, Ryegrass, Zoysia, mixtures, and other grasses or ornamental turf	Anthraxnose (<i>Colletotrichum graminicola</i>) Brown patch (<i>Rhizoctonia solani</i>) Dollar spot (<i>Lanzia and Moellerodiscus</i> spp., formerly <i>Sclerotinia homeocarpa</i>) Powdery mildew (<i>Erysiphe graminis</i>) Rust (<i>Puccinia</i> spp.) Gray leaf spot (<i>Pyricularia grisea</i>) "Damping off" or seedling blights caused by <i>Pythium</i>

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep unprotected persons out of treated areas until sprays have dried.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of onsite or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

CHEMIGATION INSTRUCTIONS

General Information:

Apply this product only through drip (trickle) irrigation (including micro-irrigation through spaghetti tubes or individual tubes) or sprinkler irrigation (including impact or microsprinklers, microjet, overhead boom, water gun, solid set, lateral move, end tow, side-roll, center pivot, or hand move, including mist-type systems); or with hand-held calibrated irrigation equipment (such as a hand-held wand with injector). Do not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and con-

nected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and injector system and flush with clean water before use. Failure to provide a clean tank, free of scale or residues may reduce effectiveness of this product.

Drip (trickle) and micro-irrigation chemigation

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.

Sprinkler chemigation:

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

WARRANTY

Certs USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purpose referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the disease problem, condition of the crop, incompatibility with other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage, or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.



Question about EPA Reg. no. 70051-107
Susanne Cerrelli to: Dively, Chris

06/15/2012 11:58 AM

I am trying to recollect a conversation that I had with you regarding EPA Reg. no. 70051-107 final printed labels that were submitted on March 23, 2012 and a correction that you requested to the label.

I did not properly record what the noted typographical error was on the approved label. Please could you identify the section, and also clarify if this issue was already addressed in your subsequent notifications for this product?

If the issue was already addressed, i would deal with this differently.

Please comment.

Regards,

Susanne Cerrelli

Regulatory Action Leader
Microbial Pesticides Branch
Biopesticides Pollution Prevention Division (7511P)

703-308-8077(w)

June 15, 2012

Subject: Storage Stability and Corrosion Characteristics Data Submission (MRID 48803901)

EPA Reg. No. : 70051-107

Product name: CX-9032

Decision No.: 464420

Submission No: S915463

Note to the File:

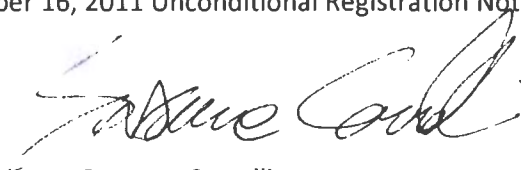
The study that was submitted on April 18, 2012, MRID 48803901, adequately addresses the terms of registration regarding Storage Stability and Corrosion Characteristics data requirements.

The Storage stability data indicate that the product is stable with no significant degradation when the product is stored for 12 months at 4°C and 25°C.

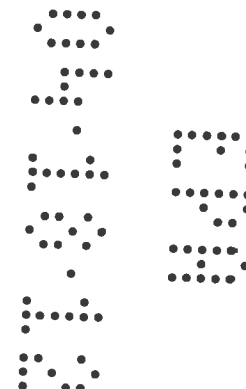
The corrosion characteristic observations indicate that CX-9032 does not, perforate, darken or cause leaking at the seam of HDPP bottles twelve months in storage at 4 and 25°C.

Final Printed labels were submitted on March 22, 2012 for EPA Reg. No. : 70051-107

All terms identified in the December 16, 2011 Unconditional Registration Notice for this product have been fulfilled.

A handwritten signature in black ink, appearing to read "Susanne Cerrelli", is positioned above the printed name and title.

Susanne Cerrelli
Regulatory Action Leader



April 18, 2012

RECEIPT

Address: U.S. Environmental Protection Agency
Office of Pesticide Programs
Microbial Pesticides Branch
Registration Division (7504P)
Room S-4900, One Potomac Yard
2777 South Crystal Drive
Arlington, VA 22202-4501

Attn: Dr. Sheryl K. Reilly, Chief

RE: Certis USA/EPA Reg. No.: 70051-107
Submission of Storage Stability Study Final/ Addendum to Interim Study
Terms of Registration Notice Dated December 16, 2011

Mail Enclosures Received by:

Signature

Date and Time

CERTIS

Certis USA, L.L.C.
9145 Guilford Road
Suite 175
Columbia, MD 21046
(301) 604-7340
FAX (301) 604-7015
www.certisusa.com

48803900

By Courier

April 17, 2012

Dr. Sheryl K. Reilly, Chief
Microbial Peaticides Branch
Biopesticides and Pollution Prevention Division (7504P)
Office of Pesticide Programs
US Environmental Protection Agency
Room S-4900, One Potomac Yard
2777 South Crystal Drive
Arlington, VA 22202-4501

Re: Certis USA/EPA Registration Number 70051-107
Submission of Storage Stability Study Final/ Addendum to Interim Study
Term of Registration Notice Dated December 16, 2011

Dear Dr. Reilly:

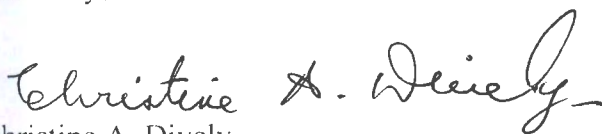
On behalf of Certis U.S.A., L.L.C., (9145 Guilford Road, Suite 175, Columbia, Maryland 21046), I am respectfully submitting the following study to complete the terms of registration for CX-9032 (alternate brand name Double Nickel LC):

48803901 • Volume I - OPPTS: 830.6317 Storage Stability Final Report – Addendum to Interim Study; OPPTS: 830.6320 – Corrosion Characteristics

Please do not hesitate to contact me if you have any questions about this submission. I can be reached by telephone at 301-483-3806 or by email at cdively@certisusa.com.

Thank you for your kind attention to this submission.

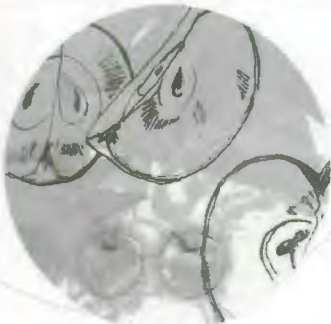
Sincerely,



Christine A. Dively
Director of Regulatory Affairs
Certis USA

Enclosure

cc: Ms. Susanne Cerrelli/Regulatory Action Leader



OMRI Listed®

The following product is OMRI Listed. It may be used in certified organic production or food processing and handling according to the USDA National Organic Program Rule.

Product
Double Nickel LC Biofungicide

Company
Certis USA
Ms. Christine Dively
9145 Guilford Rd, Suite 175
Columbia, MD 21046-1952

Status
Allowed with Restrictions

Category
Microbial Pesticides

Issue Date
10-May-12

Product number
ttc-2981

Class
Crop Pest, Weed, and Disease Control

Expiration Date
01-Jun-2013

Restrictions

May be used for pesticidal purposes only if the requirements of 205.206(e) are met, which requires the use of preventative, mechanical, physical, and other pest, weed, and disease management practices.

Peggy Miers
Executive Director

Product review is conducted according to the policies in the current OMRI Policy Manual and based on the standards in the current OMRI Standards Manual. To verify the current status of this or any OMRI Listed product, view the most current version of the OMRI Products List at www.omri.org. OMRI listing is not equivalent to organic certification and is not a product endorsement. It cannot be construed as such. Final decisions on the acceptability of a product for use in a certified organic system are the responsibility of a USDA accredited certification agent. It is the operator's responsibility to properly use the product, including following any restrictions.

OMRI
Listed

Organic Materials Review Institute
P.O. Box 11558, Eugene, OR 97440-3758, USA
541.343.7600 • fax 541.343.8971 • info@omri.org • www.omri.org

omr3-13 3.61.201204261214



RE: EPA Reg. no. 70051-107 Double Nickel LLC (CX-9032)

Dively, Chris

to:

Susanne Cerrelli

05/25/2012 02:59 PM

Cc:

"Dively, Chris"

Hide Details

From: "Dively, Chris" <cdively@certisusa.com>

To: Susanne Cerrelli/DC/USEPA/US@EPA

Cc: "Dively, Chris" <cdively@certisusa.com>

1 Attachment



Double Nickel LC.pdf

Hi Susanne,

Per the Registration Notice for Double Nickel LC attached is the OMRI Certificate for this product.

Please have a safe, enjoyable Memorial Day week-end.

Chris

From: Susanne Cerrelli [<mailto:Cerrelli.Susanne@epamail.epa.gov>]

Sent: Tuesday, May 22, 2012 4:55 PM

To: Dively, Chris

Cc: Michael Glikes

Subject: EPA Reg. no. 70051-107 Double Nickel LLC (CX-9032)

My records show that the alternate brand name "Double Nickel LLC" was approved April 6, 2012

I do not have a record of another notification for Double Nickel" **without** "LLC"

I have your final printed label submission dated March 22, 2012 , and your storage stability submission dated 4-18-12.

Can you please clarify the exact date and content of the notification? and I will make a further effort to locate it. Please send me a PDF of the notification , if possible. Perhaps I misunderstood your request.

Regards,

Susanne Cerrelli

Regulatory Action Leader
Microbial Pesticides Branch
Biopesticides Pollution Prevention Division (7511P)

703-308-8077(w)



United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☐ Amendment
☒ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 70051-107	2. EPA Product Manager A. Reynolds	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Double Nickel LC	PM# Microbial Pest. Control	
5. Name and Address of Applicant (Include ZIP Code) Certis U.S.A., L.L.C. 9145 Guilford Road.Suite 175 <input type="checkbox"/> Check if this is a new address		6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(ii), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Directions to attach container to a garden hose. No other changes have been made to the EPA stamped label.
See additional certification statement

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____	
* Certification must be submitted		If "Yes" Unit Packaging wgt. No. per container	If "Yes" Package wgt. No. per container		
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 8,16, 24, 32 oz		5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed to Product		<input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled <input type="checkbox"/> Other _____			

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)			
Name Christine A. Dively		Title Director of Reg. Affairs	
		Telephone No. (Include Area Code) 301-483-3806	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.			8. Date Application Received (Stamped)
2. Signature 		3. Title Director of Reg. Affairs	
4. Typed Name Christine A. Dively		5. Date April 5, 2012	



Certis USA, L.L.C.
9145 Guilford Road
Suite 175
Columbia, MD 21046
(301) 604-7340
FAX (301) 604-7015
www.certisusa.com

By Courier

April 5, 2012

Mr. Alan Reynolds
Team Leader
Microbial Pesticides Branch
Biopesticides and Pollution Prevention Division
US Environmental Protection Agency

Re: EPA Registration Number: 70051-107
CX-9032 (Alternate Brand Name Double Nickel I.C)
Notification to Add Directions to Connect Container to Garden Hose

Dear Mr. Renolds:

On behalf of Certis U.S.A., U.S.S., (9145 Guilford Road, Suite 175, Columbia, Maryland 21046), I am respectfully submitting the following documents to support a Notification to add directions to connect the pesticide container to a garden hose:

- EPA Form 8570-1; Application for Pesticide
- Certification Statement per PR Notice 98-10 and 40CFR 152.46
- Copy of EPA-Stamped Label
- Marked version of amended label
- Clean copy of the amended label

Please do not hesitate to contact me if you have any questions about this submission. I can be reached by telephone at 301-483-3806 or email at cdively@certisusa.com.

Sincerely,

Christine A. Dively
Director of Regulatory Affairs
Certis USA

Enclosure



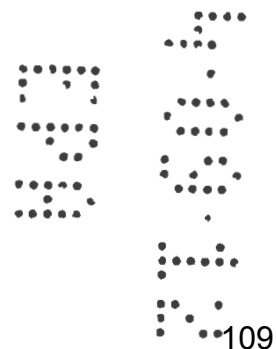
Certis USA, L.L.C.
9145 Guilford Road
Suite 175
Columbia, MD 21046
(301) 604-7340
FAX (301) 604-7015
www.certisusa.com

**Product Number: 70051-107- Notification to add directions for use to
attach product to garden hose**

"This Notification is consistent with the provisions of PR Notice 98-10 and EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under section 12 and 14 of FIFRA."

Christine A. Dwyer
Director of Regulatory Affairs
Signature and Title

April 5, 2012
Date



MASTER LABEL
SUBLABEL A: Agricultural Use

place holder for OMRI Seal

CX-9032

Aqueous Suspension Biofungicide/Bactericide att. Brand Name Double Nickel LC

FOR ORGANIC PRODUCTION

Active Ingredient:

Bacillus amyloliquefaciens strain D747* 98.85 %

Other Ingredients 1.15%

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

Notification Accepted

Date:

5/16/2012

Reviewer:

M. Glikes

NET CONTENTS:

Lot No.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product label with you when calling a poison control center or doctor.

Hot Line No.: 1-800-255-3924

PRECAUTIONARY STATEMENTS**HAZARDS TO HUMANS & DOMESTIC ANIMALS****CAUTION**

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco and using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow manufacturer's instructions for cleaning and maintaining PPE. If no instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides, the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticides get inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For Terrestrial Uses: Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

CX-9032 can be applied alone or in combination and/or rotation with chemical fungicides as a tool for integrated disease management in agricultural crops, ornamental and nursery plants, and turfgrass. CX-9032 offers a valuable tool for management of resistance to chemical fungicides through its multiple and unique modes of action.

CX-9032 can be applied up to and including the day of harvest.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is: coveralls, waterproof gloves, shoes plus socks.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

MIXING AND HANDLING INSTRUCTIONS

Mix the required amount of CX-9032 in water with sufficient agitation to maintain a uniform suspension in the spray or mixing tank. Tank should be cleaned prior to use. Do not use highly alkaline or highly acidic water to mix sprays. Use a buffering agent if necessary to maintain neutrality (pH 6 to 8) of water in the tank. Maintain agitation during application. Apply immediately after mixing; do not allow spray mix to stand overnight.

CX-9032 can be mixed and used with other agricultural chemicals for which such mixing is permitted by the product labels, in accordance with the most restrictive of those label limitations and precautions. If such a mixture is planned, a compatibility "jar test" should first be conducted by mixing the correct proportions of CX-9032 and these products in a small volume of water.

APPLICATION METHODS

Ground: CX-9032 can be applied in most commonly-used ground application equipment, such as (but not limited to): tractor-mounted boom, airblast, high clearance, hose-end, backpack, and other pressurized sprayers; hose-end or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method.

Aerial: CX-9032 can be applied by fixed or rotary winged aircraft in a minimum of 3 gallons of water per acre. Standard precautions should be taken to minimize spray drift.

Chemigation: CX-9032 can be applied through drip (trickle) and sprinkler type irrigation equipment. Refer to the section entitled "Chemigation Instructions" for detailed instructions.

Agricultural crops

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Vegetables and melons:	
Brassica vegetables such as broccoli, cabbage, cauliflower, Brussels sprouts, kohlrabi, and other cole crops.	Pin rot complex (<i>Alternaria/Xanthomonas</i>)* Leaf spots (<i>Alternaria</i> spp., <i>Xanthomonas</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe polygoni</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Bulb vegetables such as onions, garlic, shallots, and others.	<i>Botrytis</i> spp. (neck rot, leaf blight) Purple blotch (<i>Alternaria</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Rust (<i>Puccinia porii</i>)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Cucurbits such as cucumbers, squash (all types), cantaloupes, muskmelons, watermelons, and other melons.	Powdery mildew (<i>Erysiphe</i> and <i>Sphaerotheca</i> spp.) Downy mildew (<i>Pseudoperonospora</i> spp.) Gummy stem blight (<i>Didymella bryoniae</i> and <i>Phoma cucurbitacearum</i>) See instructions below for "Soil application" against the following diseases: Vine decline (<i>Monosporascus cannonballus</i>) Charcoal rot (<i>Macrophomina phaseoli</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Fruiting vegetables such as tomatoes, peppers, eggplant, tomatillo, okra, and others.	Bacterial spot (<i>Xanthomonas</i> spp.)* ¹ Bacterial speck (<i>Pseudomonas syringae</i> pv. <i>tomato</i>)* ¹ Gray mold (<i>Botrytis cinerea</i>) Powdery mildew* (<i>Leveillula</i> , <i>Oidiopsis</i> , <i>Erysiphe</i> , and <i>Sphaerotheca</i> spp.) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Southern blight (<i>Sclerotium rolfsii</i>)*
Leafy vegetables such as head and leaf lettuce, celery, spinach, radicchio, arugula, watercress, and others (including leafy <i>Brassica</i> vegetables such as mustard and collard greens, kale, bok choy, and related crops).	Downy mildew (<i>Bremia lactucae</i> , <i>Peronospora</i> spp.)* Powdery mildew (<i>Golovinomyces (Erysiphe) cichoracearum</i>)* Bacterial blights Head and leaf drop (<i>Sclerotinia</i> spp.)* ² Pink rot (<i>Sclerotinia sclerotiorum</i>)* ² Leaf spots (<i>Cercospora</i> spp.) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Bottom rot (<i>Rhizoctonia solani</i>)
Legume vegetables succulent and dried beans and peas such as green, snap, shell, and Lima beans, garbanzo beans, chickpeas, soybeans, dry beans, peas, split peas, lentils, and other	White mold (<i>Sclerotinia sclerotiorum</i>)* ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Microsphaera diffusa</i>) Rusts*, including <i>Uromyces appendiculatus</i> , <i>Puccinia</i> spp., and Asian soybean rust (<i>Phyospora pachyrhizi</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below

legumes.	for "Soil application").
Root, tuber, and corm vegetables such as potato, sweet potato, carrot, cassava, beets, ginger, radish, horseradish ²² , ginseng, turnip, and other root, tuber and corm crops.	Black root/crown rot (<i>Alternaria</i> spp.) Bacterial leaf blight (<i>Xanthomonas campestris</i>) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Gray mold (<i>Botrytis</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Black leg /bacterial soft rot (<i>Erwinia carotovora</i>) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: Black scurf (<i>Rhizoctonia solani</i>) Cavity spot (<i>Pythium</i> spp.) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Other vegetables such as sweet corn, popcorn, asparagus, peanut, and watercress	<i>Botrytis</i> spp. Rusts (<i>Puccinia</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> and <i>Cercosporidium</i> spp.)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tree fruits and nuts	
Citrus such as orange, lemon, lime, grapefruit, tangerine (mandarin), tangelo, pummelo, and other citrus	<i>Alternaria</i> leaf spot (<i>Alternaria alternata</i>) Postbloom fruit drop (<i>Colletotrichum acutatum</i>)* Greasy spot (<i>Mycosphaerella citri</i>)* ³ Citrus canker (<i>Xanthomonas campestris</i> pv. <i>citri</i>) ¹ Scab (<i>Elsinoe fawcetti</i>)* ⁴ Melanose (<i>Diaporthe citri</i>)*
Pome fruits such as apple, pear, crabapple, quince, and others	Powdery mildew (<i>Podosphaera leucotricha</i>) ⁵ Scab (<i>Venturia</i> spp.)* Flyspeck (<i>Zygophiala jamaicensis</i>) ⁶ Sooty blotch disease complex ⁶ Brooks spot (<i>Mycosphaerella pomi</i>) ⁶ Bot rot/white rot (<i>Botryosphaeria dothidea</i>) ⁶ Bitter rot (<i>Colletotrichum</i> spp.) ⁶ Cedar apple rust (<i>Gymnosporangium juniperi-virginianae</i>) ⁶ Fire blight (<i>Erwinia amylovora</i>)* ⁷
Stone fruits such as apricot, cherry, nectarine, peach, plum, prune, pluot, and others	Powdery mildew (<i>Sphaerotheca</i> and <i>Podosphaera</i> spp.)* ⁸ Bacterial canker (<i>Pseudomonas</i> spp.) Brown rot blossom blight (<i>Monilinia laxa</i>) ⁹ Brown rot (<i>Monilinia fructicola</i>)* ¹⁰ Gray mold (<i>Botrytis cinerea</i>) ¹⁰ Peach leaf curl (<i>Taphrina deformans</i>) Bacterial leaf spot (<i>Xanthomonas arbuticola</i> pv. <i>pruni</i>) ¹ Rusty spot (<i>Podosphaera leucotricha</i>) ¹
Tree nuts such as almond, pistachio, pecan, walnut, filbert, hazelnut, chestnut, macadamia, and other tree nuts.	Walnut blight (<i>Xanthomonas campestris</i>) ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>)* Bacterial canker (<i>Pseudomonas syringae</i>) Shot hole (<i>Wilsonomyces carpophilus</i>)* Brown rot (<i>Monilinia</i> spp.)* Pecan scab (<i>Cladosporium caryigenum</i>)* ¹
Pomegranates	Leaf and fruit spots (<i>Cercospora</i> , <i>Gloeosporium</i> and <i>Pestalotia</i> spp.) ¹ Fruit rots (<i>Alternaria</i> , <i>Botrytis</i> , and other spp.) ¹⁰ Powdery mildew (<i>Sphaerotheca pannosa</i>)
Other fruits	
Strawberry	Powdery mildew (<i>Sphaerotheca macularis</i> , <i>Erysiphe</i> spp.)* ¹² Gray mold (<i>Botrytis cinerea</i>)* ¹¹

	<p>Anthrachnose (<i>Colletotrichum acutatum</i>)</p> <p>Angular leaf spot (<i>Xanthomonas fragariae</i>)¹</p> <p>For the following diseases, see instructions below for "Soil application" (and also root dip instructions²²):</p> <p>"Damping off" and root or crown diseases caused by <i>Rhizoctonia</i>, <i>Fusarium</i>, <i>Pythium</i>, <i>Phytophthora</i>, and/or <i>Verticillium</i>* spp.</p> <p>Charcoal rot (<i>Macrophomina phaseolina</i>)</p>
Berries , including blueberry, blackberry, raspberry, loganberry, huckleberry, gooseberry, elderberry, cranberry (non-flooded fields), current, and other berries	<p>Mummy berry (<i>Monilinia vaccinii-corymbosi</i>)*</p> <p>Botrytis blight (<i>Botrytis cinerea</i>)</p> <p>Bacterial canker (<i>Pseudomonas</i> spp.)¹³</p> <p>Anthrachnose fruit rot (<i>Colletotrichum acutatum</i>)¹⁰</p>
Grapes including wine grapes, table grapes, and raisins	<p>Powdery mildew (<i>Erysiphe</i> (formerly <i>Uncinula</i>) <i>necator</i>)¹⁴</p> <p>Gray mold (<i>Botrytis cinerea</i>)¹⁵</p> <p>Sour rot complex¹⁵</p> <p>Downy mildew (<i>Plasmopara viticola</i>)*</p> <p>Phomopsis (<i>Phomopsis viticola</i>)¹⁶</p> <p>Eutypa (<i>Eutypa lata</i>)¹⁷</p>
Tropical fruits such as avocado ¹⁸ , mango ¹⁸ , papaya ¹⁹ , pineapple ¹⁹ , banana, plantain, and others.	<p>Anthrachnose (<i>Colletotrichum</i> spp.)</p> <p>Scab (<i>Sphaceloma perseae</i>)</p> <p>Bacterial canker (<i>Xanthomonas campestris</i>)</p> <p>Sigatoka (<i>Mycosphaerella fijiensis</i>)²⁰</p>
Other Crops	
Herbs and spices such as basil, thyme, coriander, dill, cilantro, parsley, mint, and others.	<p>Powdery mildews (<i>Oidium</i> spp. and others)</p> <p>Downy mildews (<i>Peronospora</i> spp. and others)*</p> <p>Damping off diseases (<i>Rhizoctonia</i>, <i>Pythium</i>, <i>Alternaria</i>, and <i>Fusarium</i> spp.)</p> <p>Leaf spots (<i>Alternaria</i>, <i>Septoria</i>, <i>Colletotrichum</i>, and <i>Cercospora</i> spp.)*</p> <p>Bacterial diseases (<i>Erwinia</i>, <i>Xanthomonas</i>, and <i>Pseudomonas</i> spp.)</p> <p>Rusts (<i>Puccinia</i> spp. and others)</p> <p>"Damping off" and root or crown diseases caused by <i>Rhizoctonia</i>, <i>Fusarium</i>, <i>Pythium</i>, <i>Phytophthora</i>, and/or <i>Verticillium</i>* spp. (see instructions below for "Soil application").</p>
Coffee	<p>Coffee berry disease (<i>Colletotrichum coffeanum</i>)¹</p> <p>Coffee rust (<i>Hemileia vastatrix</i>)¹</p> <p>Anthrachnose (<i>Colletotrichum</i> spp.)</p> <p><i>Botrytis</i> flower blight</p> <p><i>Cercospora</i> leaf spot and berry blotch</p> <p>"Damping off" and root or crown diseases caused by <i>Rhizoctonia</i>, <i>Fusarium</i>, <i>Pythium</i>, <i>Phytophthora</i>, and/or <i>Verticillium</i>* spp. (see instructions below for "Soil application").</p>
Tobacco	<p>Angular leaf spot (<i>Pseudomonas</i> spp.)</p> <p>Anthrachnose (<i>Colletotrichum</i> and <i>Glomerella</i> spp.)</p> <p>Blue mold or downy mildew (<i>Peronospora</i> spp.)*</p> <p>Brown spot (<i>Alternaria</i>)</p> <p>Barn spot/ frog-eye leaf spot (<i>Cercospora nicotianae</i>)¹⁰</p> <p>Collar rot (<i>Sclerotinia sclerotiorum</i>)²</p> <p>Gray mold (<i>Botrytis cinerea</i>)</p> <p>Powdery mildew (<i>Erysiphe cichoracearum</i>)</p> <p>Target spot (<i>Rhizoctonia solani</i>)</p> <p>See instructions below for "Soil application" against the following diseases:</p> <p>"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i>, <i>Rhizoctonia</i>, <i>Fusarium</i>, <i>Olpidium</i>, <i>Phytophthora</i>, or <i>Verticillium</i>* spp.</p> <p>Charcoal rot (<i>Macrophomina phaseolina</i>)</p> <p>Black root rot (<i>Thielaviopsis basicola</i>)</p> <p>Black shank (<i>Phytophthora</i> spp.)*</p> <p>Southern blight/southern stem rot (<i>Sclerotium rolfsii</i>)*</p>
Mint	Rust (<i>Puccinia</i> spp.)
Hops	Powdery mildew (<i>Sphaerotheca macularis</i>) ²¹

Footnotes:

*Suppression only; for improved control mix or rotate with chemical fungicide approved for such use.

¹ Tank mix or rotate with copper-based fungicides at label rates for improved control.

² Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist.

³ For greasy spot suppression, apply at first new foliar flush and repeat with each new flush. Tank mix with spray oil or copper based fungicide at labeled rates.

⁴ For suppression of citrus scab, start applications at first new foliage flush and repeat at petal fall and when fruit are ½ inch in diameter.

⁵ Make first application at or before tight cluster if conditions favor disease development. Repeat at 7-10 day intervals through the second cover spray or longer on susceptible varieties or if environmental conditions favor rapid disease development.

⁶ Begin applications before bloom when environmental conditions favor disease development, repeating at 7 to 14 day intervals or as needed. Control may be enhanced by addition of a surfactant to improve spray coverage. Use only surfactants known to be safe for use on the crop and for which such use is allowed.

⁷ Rotate with antibiotics registered for fire blight control for improved performance. Begin applications at 1-5% open blossoms and repeat every 3-7 days as necessary until petal fall, when intervals can be increased to 7 days. CX-9032 can also be used in summer "cover spray" applications to control the shoot blight phase of fire blight and summer diseases. Can be mixed with copper fungicides to improve control.

⁸ Make first application at popcorn stage and repeat every 7 days.

⁹ Start applying at early bloom stage and repeat every 7 days through petal fall.

¹⁰ Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections.

¹¹ Begin applications at or before pistillate bloom, repeating every 7-10 days. Apply before rainfall if possible, and tank mix or rotate with a copper-based bactericide registered for such use for improved control.

¹² Start applications at or just before flowering and repeat every 7-10 days as needed through harvest.

¹³ Apply before fall rains and again during dormancy before spring growth.

¹⁴ Start applications when new shoots are ½ to 1½ inches long. Repeat at 3-5 inches, 8-10 inches, and then at 7-10 day intervals until disease conditions no longer exist.

¹⁵ Apply at bloom, before bunch closure, at veraison, and before harvest.

¹⁶ Apply when shoots are ½ to 1 inch long and again when 6-8 inches long.

¹⁷ Mix 2 fluid ounces CX-9032 per gallon of water and apply to pruning wounds.

¹⁸ Apply at budbreak and repeat on 14-21 day interval as needed through harvest.

¹⁹ Apply at flowering and repeat on 14-21 day interval as needed through harvest.

²⁰ Apply at first appearance of leaves and repeat at 7-21 day intervals as needed, in sufficient water to obtain thorough coverage of foliage. Tank mix with spray oil or other registered fungicides for improved control.

²¹ Mix 6 to 10 fluid ounces CX-9032 per 100 gallons of water and apply in minimum of 20 gallons per acre from emergence to training, 50 gallons per acre from training to wire, and 100 gallons per acre from wire touch through harvest.

²² For treatment of horseradish or strawberry roots immediately before transplanting: immerse bare roots (individually or in bunches) for 10 seconds in a suspension of 1 to 2 pints CX-9032 per gallon of water.

Foliar application: For control of diseases on foliage, flowers, fruit, or other above-ground parts of plants: Mix CX-9032 in water and apply as a spray at a rate of **0.5 to 6 quarts** of CX-9032 per acre in sufficient water to achieve thorough coverage of the crop canopy with minimal runoff. Begin applications at crop emergence, transplanting, or when conditions are conducive to development of disease. Repeat application every 3 to 10 days, or as needed, for as long as conditions favor disease development. Lower rates (0.5 to 3 quarts per acre) may be applied under light disease pressure, to smaller (e.g. newly-emerged) plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (3-6 quarts/acre), apply more frequently (every 3-7 days), and mix or rotate CX-9032 with other fungicides for improved performance.

Soil application: For control of soilborne diseases infecting seeds, seedlings, roots, crown, stems, or other plant parts below ground or in contact with soil: Apply CX-9032 at **0.5 to 4.5 pints per acre**. Mix the required amount in sufficient water to apply by one of the following methods:

- Soil drench applied to transplants in flats or pots in the greenhouse or nursery any time prior to transplanting (see additional drench instructions under “Nurseries, greenhouses, shade houses, and ornamental plants” below).
- Soil drench at transplanting, using a “water wheel” injector, spray nozzles/hoses, or other method to drench each root ball and/or planting hole.
- Soil or seedline drench, or banded spray (in-furrow) at planting. See the section on “Banded (in-furrow) application” below for additional instructions.

Follow-up (post-planting) preventative applications can be made every 2-4 weeks by one or more of the following methods, if needed:

- Drip (trickle) or any type of sprinkler irrigation, any time after planting or transplanting. See Chemigation Instructions for additional information.
- Spray directly onto the soil surface and/or lower plant parts. If targeting root disease, follow immediately with sufficient overhead sprinkler irrigation to move CX-9032 to the root zone.
- Injection directly into the rooting zone using shanks or similar equipment.

Lower rates (0.5 to 2 pints of CX-9032 per acre) may be applied under light disease pressure, to smaller plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (2 - 4.5 pints per acre), apply more frequently (every 2 weeks), and mix or rotate CX-9032 with other fungicides for improved performance.

Banded (in-furrow) application: Use the table below (rate CX-9032 per acre) to determine the correct application rate in fluid ounces per 1,000 row feet based on row spacing and desired rate per acre. Mix the required amount of CX-9032 in water and apply as banded spray (4” to 6” wide) or seedline drench centered over the planting furrow. Apply directly over seeds in the furrow just before they are covered with soil. The volume of water required per acre or per 1,000 row feet will depend on the application equipment used. Consult your local cooperative extension service if you need assistance calibrating band spraying equipment.

Rates for banded (in-furrow) application: Find desired application rate of CX-9032 per acre in the left column. Read across that line to the correct row spacing indicated at the top to find the number of fluid ounces per 1,000 row feet that will provide the desired application rate per acre.

CX-9032 rate/acre		Space between rows (inches)														
Pints	fl oz	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
0.5	8	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
0.75	12	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
1.0	16	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2
1.25	20	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.5
1.5	24	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8
1.75	28	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
2.0	32	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2.25	36	0.8	1.0	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	2.3	2.5	2.6	2.8
2.5	40	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9	3.1
2.75	44	1.0	1.2	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2	3.4
3.0	48	1.1	1.3	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.5	3.7
3.25	52	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
3.5	56	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.3
3.75	60	1.4	1.6	1.8	2.1	2.3	2.5	2.8	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6
4.0	64	1.5	1.7	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
4.25	68	1.6	1.8	2.1	2.3	2.6	2.9	3.1	3.4	3.6	3.9	4.2	4.4	4.7	4.9	5.2
4.5	72	1.7	1.9	2.2	2.5	2.8	3.0	3.3	3.6	3.9	4.1	4.4	4.7	5.0	5.2	5.5

Nurseries, greenhouses, shadehouses, and ornamental plants

Spray application: Mix **0.5 to 6 quarts of CX-9032 per 100 gallons of water** and apply as a foliar spray of sufficient volume to wet the entire plant with minimal runoff. Begin preventative applications at plant emergence and repeat every 3-28 days as needed (every 3-7 days if disease pressure is high or environmental conditions are highly favorable to disease outbreak, 10-28 days under low pressure or less conducive conditions).

Drench application: Mix **0.5 to 4.5 pints of CX-9032 per 100 gallons of water** and apply as a drench or coarse spray to soil or other growing media in pots, flats, plugs, trays, or planting beds, for control or suppression of soilborne diseases of seedlings, cuttings, bedding plants, and transplants (including vegetables and other transplanted food crops). Make first application at or immediately before seeding, sticking, germination, or transplanting. Repeat applications every 14-28 days as needed. Transplants can be treated immediately before transplanting into field soils to protect against damping-off and other diseases that reduce plant establishment.

Cutting or root dip: Dip basal end of cuttings or bare roots (individually or in bunches) in a suspension of **1 to 2 pints of CX-9032 per gallon of water**. Immerse for 5-10 seconds immediately before planting.

Chemigation: Mix **0.5 to 4.5 pints of CX-9032 per 100 gallons of water** and apply via drip, handheld, or sprinkler irrigation systems. Refer to "Chemigation Instructions" for more details.

CROPS/USE SITES	DISEASES/PATHOGENS
Indoor, outdoor, and shade- or other cover-grown ornamental trees and shrubs, flowering plants, foliage plants, tropical plants, potted plants, potted or cut flowers, bedding plants, forestry seedlings, conifer production for reforestation, fruit trees, vegetables and other crops grown in greenhouses or nurseries.	Powdery mildews caused by <i>Erysiphe</i> , <i>Podosphaera</i> , <i>Sphaerotheca</i> , <i>Oidium</i> , and <i>Golovinomyces</i> spp./ Anthracnose (<i>Colletotrichum</i> spp.) Bacterial leaf spots caused by <i>Erwinia</i> , <i>Pseudomonas</i> , and <i>Xanthomonas</i> spp. Damping-off disease (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> spp.) Late blight, blackeye, and root rots caused by <i>Phytophthora</i> spp. Gray mold and blight caused by <i>Botrytis cinerea</i> Black root rot (<i>Aspergillus</i> spp.) Black spot of roses (<i>Diplocarpon rosae</i>) Downy mildew (<i>Peronospora</i> spp.) Leaf spots caused by <i>Alternaria</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Entomosporium</i> , <i>Helminthosporium</i> , and <i>Myrothecium</i> spp.) Rust (<i>Puccinia</i> spp.) Scab (<i>Venturia</i> spp.) Root rot, bottom rot, or stem rot caused by <i>Rhizoctonia solani</i> Sclerotinia blight Fusarium wilts

Turfgrass application

For control of foliar diseases, apply CX-9032 at **1 to 4 fluid ounces per 1,000 square feet** as a ground-directed spray in sufficient water to provide thorough coverage. To control root and crown diseases in or on the soil, immediately follow the spray with sufficient overhead sprinkler irrigation to move the product into the root zone.

USE SITES/CROPS	DISEASES/PATHOGENS
Turf, sod, lawns, golf course (fairways, roughs, greens, tees), grass seed production Including but not limited to: Bluegrass, Bentgrass, Bermudagrass (common & hybrid), Dichondra, Fescue, Orchardgrass, <i>Poa annua</i> , St. Augustine grass, Ryegrass, <i>Zoysia</i> , mixtures, and other grasses or ornamental turf	Anthracnose (<i>Colletotrichum graminicola</i>) Brown patch (<i>Rhizoctonia solani</i>) Dollar spot (<i>Lanzia</i> and <i>Moellerodiscus</i> spp., formerly <i>Sclerotinia homeocarpa</i>) Powdery mildew (<i>Erysiphe graminis</i>) Rust (<i>Puccinia</i> spp.) Gray leaf spot (<i>Pyricularia grisea</i>) "Damping off" or seedling blights caused by <i>Pythium</i>

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep unprotected persons out of treated areas until sprays have dried.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of onsite or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

CHEMIGATION INSTRUCTIONS**General information:**

Apply this product only through drip (trickle) irrigation (including micro-irrigation through spaghetti tubes or individual tubes) or sprinkler irrigation (including impact or microsprinklers, microjet, overhead boom, water gun, solid set, lateral move, end tow, side-roll, center pivot, or hand move, including mist-type systems); or with hand-held calibrated irrigation equipment (such as a hand-held wand with injector). Do not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and injector system and flush with clean water before use. Failure to provide a clean tank, free of scale or residues may reduce effectiveness of this product.

Drip (trickle) and micro-irrigation chemigation

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.

Sprinkler chemigation:

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

WARRANTY

Certis USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purpose referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the disease problem, condition of the crop, incompatibility with other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage, or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

MASTER LABEL
SUBLABEL B: Residential Use

OMRI placeholder

CX-9032

Aqueous Suspension Biofungicide/Bactericide for control of plant diseases in home gardens: vegetables, ornamental and fruit trees, shrubs, lawns, flowers, bedding plants, and potted ornamental plants

FOR ORGANIC GARDENING**Active Ingredient:***Bacillus. amyloliquefaciens* strain D747* 98.85 %**Other Ingredients**1.15 %

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS:

Lot No.:

KEEP OUT OF REACH OF CHILDREN**CAUTION****SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS****PRECAUTIONARY STATEMENTS****HAZARDS TO HUMANS (AND DOMESTIC ANIMALS): CAUTION:**

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.0

ENVIRONMENTAL HAZARDS:

To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Mixing instructions:

CX-9032 must be mixed with water and applied as a spray to fruit and foliage, or as a drench to plant roots. See below for specific mix rate information.

Application rates and methods:

Spray application for control of powdery mildews, leaf spots, anthracnose, gray mold, and other diseases affecting leaves, flowers, fruit, and other above-ground plant parts of home garden plants: Mix 1 teaspoon of CX-9032 per gallon of water and apply directly to plants using a hand pump sprayer or other suitable spray equipment. Spray just enough to wet all leaves and fruit with minimal run-off or dripping. Total coverage depends on the size of plants to be sprayed and the type of sprayer used. Repeat as needed to maintain disease control, typically every 7-10 days. If disease is prevalent or environmental conditions such as high humidity favor disease outbreak, increase the mixing rate to 1 tablespoon per gallon and shorten the interval between sprays to every 3-7 days.

Drench application for control of diseases affecting plant roots, tubers, or other parts of plants in contact with soil in the home garden: Mix 1 teaspoon of CX-9032 per gallon of water and apply to the soil by one of the following methods:

1. For potted plants (indoors or outdoors), apply in sufficient water to wet the entire root mass using a watering can or tank-fed watering wand. Do not water plants again until 24 hours after application. Alternatively, use a hand-pump or other sprayer to spray the mixture on the soil surface in each pot, then immediately apply sufficient water to move the product into the roots.
2. Drench the roots of transplants with approx. 4 fluid ounces of the mixture immediately before transplanting into pots or garden soil. Allow to soak into the root ball before transplanting.
3. For outdoor-grown plants, use a watering can or sprayer to drench the soil in the planting furrow or transplant hole immediately before planting or transplanting. The amount of water required will depend on the size of the hole or length of furrow.
4. Alternatively, apply in the first watering after planting or transplanting, either by mixing directly into the water at the rate indicated above, or by spraying onto the soil surface at the base of each plant and immediately watering in with a watering can, hose, sprinkler, or other watering device.

CX-9032 can be applied up to and including the day of harvest.

For application to lawns and other turfgrass areas: Mix 1 teaspoon of CX-9032 per gallon of water and apply as a fine spray to the surface of the lawn or grass area. Total amount of mix required will depend on the type of sprayer used and area to be covered, but typically 2 to 5 gallons of spray mix may be required per 1,000 square feet of turf. CX-9032 can be "watered in" for control of soilborne root and crown diseases by thorough watering immediately after application either with sprinklers or by spraying just before or during light rain.

STORAGE AND DISPOSAL**PESTICIDE STORAGE:**

Keep in original container. Store away from direct sunlight, feed, or foodstuffs.
Keep container tightly sealed when not in use.

PESTICIDE DISPOSAL AND CONTAINER HANDLING

Non-refillable container. Do not reuse or refill container.

If empty:

Place in trash or offer for recycling, if available.

If partly filled:

Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

Optional Language for Attaching Container to a Garden Hose**See Attachments****Hose End Sprayer Use Instructions**

The sprayer attached to the container is ready-to-use. Simply attach to your garden hose and follow these instructions:

1. Insure the large, round "on/off" knob is set to OFF.
2. Turn on water.
3. PUSH IN small knob near front of sprayer. This allows water and product to mix.
4. Hold sprayer and container level and point towards area to be sprayed.
5. Turn large, round "on/off" knob to ON.
6. Begin spraying product evenly over area you wish to treat.
7. Spray to visibly wet.
8. To stop spraying, turn large, round "on/off" knob to OFF.
9. PULL OUT small knob near front of sprayer. This prevents product from mixing with water.
10. Turn off water at faucet. Relieve water pressure in the hose by turning large, round "on/off" knob ON until water pressure is reduced.
11. Turn the knob to OFF for storage of unused product/and/or disposal of empty container.

Covers 5,000 sq. ft. or equivalent per 32 oz. container size.

-or-

Option 1

HOW TO USE

Make sure water control knob on hose sprayer is in the "OFF" position. Hold by handle and shake vigorously, turning bottle as you shake. Attach hose to spray nozzle. Bend safety tab back and break off. Turn control to "WATER" position. Slowly turn on water supply to moderate rate of flow. Point nozzle toward spray area, turn control knob to "ON". Product will automatically mix with water. Slowly sweep the area to be treated. To stop spraying, turn control valve to the "OFF" position. Turn off water at faucet. To relieve pressure, turn control valve to the "WATER" position pointing sprayer away from self. Remove from hose.

Option 2

TWIST & SHOOT™ READY TO SPRAY INSTRUCTIONS

- 1) Make sure control knob is in "OFF" position, then connect to garden hose.
- 2) Turn water on at faucet. When spraying low growing plants and small shrubs, twist the control knob right, to the "FAN" position. When spraying taller trees, shrubs and other plants, twist the control knob left to the "STREAM" position for extended reach and more uniform coverage. The product mixes automatically with the water as you spray.
- 3) To stop spraying, turn the control knob lever to the "OFF" position. Turn off water at the faucet and disconnect sprayer from garden hose.

-or-

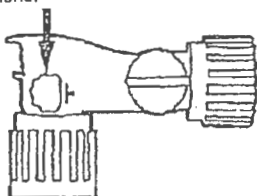
READY-TO-SPRAY INSTRUCTIONS

FOR OUTDOOR USE ONLY

DOUBLE KNOB SPRAYER INSTRUCTIONS

The sprayer attached to the container is ready-to-use. Simply attach to the garden hose and follow these simple instructions:

1. Insure the large, round "on/off" knob is set to OFF.
2. Turn on water.
3. Rotate the small, star-shaped product control knob to align the flat portion of the knob with the vertical portion of the lock tab and PUSH IN the knob to open. This allows product to mix with water.
4. Hold sprayer and container level and point towards area to be sprayed.
5. Turn large, round "on/off" knob forward (away from you) to ON.
6. Begin spraying product evenly over area you wish to treat.
7. To stop spraying, turn large, round "on/off" knob backward (toward you) to OFF.
8. PULL OUT and rotate the small, star-shaped product control knob. This prevents product from mixing with water.
9. Turn off water at the faucet. Relieve water pressure in the hose by turning large, round "on/off" knob to ON until water pressure is reduced.
10. Turn the knob to OFF for storage or unused product and/or disposal of empty container.



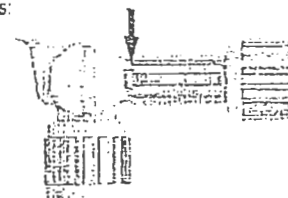
OR

SINGLE KNOB SPRAYER INSTRUCTIONS

The sprayer attached to the container is ready-to-use. Simply attach to the garden hose and follow these instructions:

1. Turn on water.
2. Hold sprayer and container level and point towards area to be sprayed.
3. Bend yellow tab back and turn knob backward (toward you) to ON.
4. Begin spraying product evenly over area you wish to treat.
5. To stop spraying, turn knob forward (away from you) to OFF.
6. Turn off water.

Properly store unused product or dispose of empty container.



USING THE READY SPRAY NOZZLE

1. *Shake container well before using.*
2. Connect a garden hose to the Ready Spray nozzle. Make sure the dial on the nozzle is in the "OFF" position with the safety tab in the valve notch.
3. Turn on water at faucet. Extend hose to the farthest area to be treated and work back toward the faucet so you don't come in contact with the treated area.
4. To BEGIN spraying, point nozzle toward treatment site and a.) bend the safety tab back (located at right of dial) with your thumb and b.) hold while turning dial clockwise until it stops. Water will automatically mix with the product.
5. Spray until wet to control insects. Walk at a steady pace while spraying using an even sweeping motion, slightly overlapping treated areas.
6. To STOP spraying, QUICKLY turn the dial counterclockwise until it stops and the safety tab engages into the notch on the valve. Turn water off at faucet. To relieve pressure before removing nozzle from hose, bend the safety tab back and turn dial "ON" until water stops spraying.
7. To STORE unused product, make sure the dial is in the "OFF" position with safety tab in the valve notch. Place in cool area away from heat, sunlight or open flame.

NOTE: This product is non-staining to most home siding depending on age and cleanliness. However, before using in areas where the spray may contact home siding (vinyl siding in particular), test in an inconspicuous area and recheck in a few hours. Do not use if any staining is observed.

-or-

READY-TO-USE DIRECTIONS FOR USE OUTDOORS ONLY

HOW TO USE THE READY-TO-SPRAY SYSTEM

Connect

1. Shake well before using.
2. Connect sprayer to hose.
3. Turn on water.

Spray

1. To begin spraying, point nozzle in the direction you want to spray.
2. [Bend small plastic tab back and] Turn knob [clockwise] to ON position.
3. Spray evenly to the area to be treated. Refer to the [sight gauge] clear view strip (graduated scale) on the side of the container to determine the amount of product sprayed.

Finish

1. To stop spraying, [turn knob counter clockwise] to OFF position.
2. Turn off water.
3. Relieve water pressure by [bending plastic tab back and] turning knob to ON position until water slows to a drip. Then turn knob back to OFF position.
4. Disconnect sprayer from hose.

-or-

Hose End Applicator Instructions:

1. Make sure knob is twisted fully clockwise to OFF position. Shake well, then attach to hose.
2. Turn Product Control Button clockwise until the flat portion is flush with the lock tab, then push button all the way in. Avoid squeezing the bottle.
3. Turn water on at faucet, aim nozzle toward surface to be sprayed and turn knob counter-clockwise to begin spraying.
4. When finished, push Product Control Button to OFF position from opposite side. Return knob and faucet to OFF position. Discharge water pressure by turning knob ON and OFF again. Turn Product Control Button counter-clockwise away from lock tab to prevent accidental discharge. Store out of reach of children.

WARRANTY

Certis USA L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the insect problem, condition of the crop, incompatibility with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Christine A. Dively
Director of Regulatory Affairs
Certis USA
9145 Guilford Road, Suite 175
Columbia, MD 21046

APR 06 2012

RE: Product Name: CX-9032
EPA Reg. No: 70051-107
Application for Notification Dated: March 5, 2012 addition to add the
Alternate Brand Name: Double Nickel LC as per PR Notice 98-10.

Dear Ms Dively,

The Biopesticides and Pollution Prevention Division is in receipt of your application for Notification under Pesticides Registration Notice (PRN) 98-10 dated above. A preliminary screen of this request has been conducted for its applicability under PRN 98-10 and it has been determined that the action(s) requested falls within the scope of PRN 98-10. Our records have been duly noted, and the label submitted with this application has been stamped as "Notification Accepted" and will be placed accordingly in our records.

Questions concerning this action should be directed to Mary Paden (703) 308-0411 or email at paden.mary@epa.gov.

Sincerely,

Sheryl K. Reilly

Sheryl K. Reilly, Ph.D., Chief
Microbial Pesticides Branch
Biopesticides and Pollution Prevention
Division (7511P)

CONCURRENCES

SYMBOL	7511(P)							
SURNAME	Paden							
DATE	4-6-12							

Notification Accepted

Date: 04/06/2012

Reviewer: m. J. P. Oden
place holder for OMRI Seal

MASTER LABEL
SUBLABEL A: Agricultural Use

CX-9032

(alternate brand names: Double Tap 55, Amylo-X AS, Double Nickel LC)

Aqueous Suspension Biofungicide/Bactericide

FOR ORGANIC PRODUCTION

Active Ingredient:

Bacillus amyloliquefaciens strain D747* 98.85 %

Other Ingredients 1.15%

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS: 2.5 Gallons

Lot No.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product label with you when calling a poison control center or doctor.

Hot Line No.: 1-800-255-3924 for additional information

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco and using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow manufacturer's instructions for cleaning and maintaining PPE. If no instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides, the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticides get inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For Terrestrial Uses: Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

CX-9032 can be applied alone or in combination and/or rotation with chemical fungicides as a tool for integrated disease management in agricultural crops, ornamental and nursery plants, and turfgrass. CX-9032 offers a valuable tool for management of resistance to chemical fungicides through its multiple and unique modes of action.

CX-9032 can be applied up to and including the day of harvest.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is: coveralls, waterproof gloves, shoes plus socks.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

MIXING AND HANDLING INSTRUCTIONS

Mix the required amount of CX-9032 in water with sufficient agitation to maintain a uniform suspension in the spray or mixing tank. Tank should be cleaned prior to use. Do not use highly alkaline or highly acidic water to mix sprays. Use a buffering agent if necessary to maintain neutrality (pH 6 to 8) of water in the tank. Maintain agitation during application. Apply immediately after mixing; do not allow spray mix to stand overnight.

CX-9032 can be mixed and used with other agricultural chemicals for which such mixing is permitted by the product labels, in accordance with the most restrictive of those label limitations and precautions. If such a mixture is planned, a compatibility "jar test" should first be conducted by mixing the correct proportions of CX-9032 and these products in a small volume of water.

APPLICATION METHODS

Ground: CX-9032 can be applied in most commonly-used ground application equipment, such as (but not limited to): tractor-mounted boom, airblast, high clearance, hose-end, backpack, and other pressurized sprayers; hose-end or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method.

APPLICATION METHODS (cont.)

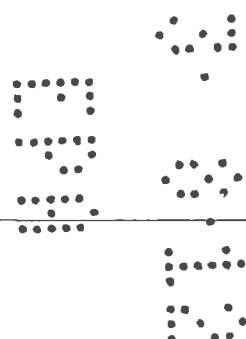
Aerial: CX-9032 can be applied by fixed or rotary winged aircraft in a minimum of 3 gallons of water per acre. Standard precautions should be taken to minimize spray drift.

Chemigation: CX-9032 can be applied through drip (trickle) and sprinkler type irrigation equipment. Refer to the section entitled "Chemigation Instructions" for detailed instructions.

Agricultural crops

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Vegetables and melons:	
Brassica vegetables such as broccoli, cabbage, cauliflower, Brussels sprouts, kohlrabi, and other cole crops.	Pin rot complex (<i>Alternaria/Xanthomonas</i>)* Leaf spots (<i>Alternaria</i> spp., <i>Xanthomonas</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe polygoni</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Bulb vegetables such as onions, garlic, shallots, and others.	<i>Botrytis</i> spp. (neck rot, leaf blight) Purple blotch (<i>Alternaria</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Rust (<i>Puccinia porii</i>)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Cucurbits such as cucumbers, squash (all types), cantaloupes, muskmelons, watermelons, and other melons.	Powdery mildew (<i>Erysiphe</i> and <i>Sphaerotheca</i> spp.) Downy mildew (<i>Pseudoperonospora</i> spp.) Gummy stem blight (<i>Didymella bryoniae</i> and <i>Phoma cucurbitacearum</i>) See instructions below for "Soil application" against the following diseases: Vine decline (<i>Monosporascus cannonballus</i>) Charcoal rot (<i>Macrophomina phaseoli</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Fruiting vegetables such as tomatoes, peppers, eggplant, tomatillo, okra, and others.	Bacterial spot (<i>Xanthomonas</i> spp.)* ¹ Bacterial speck (<i>Pseudomonas syringae</i> pv. <i>tomato</i>)* ¹ Gray mold (<i>Botrytis cinerea</i>) Powdery mildew* (<i>Leveillula</i> , <i>Oidiopsis</i> , <i>Erysiphe</i> , and <i>Sphaerotheca</i> spp.) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Southern blight (<i>Sclerotium rolfsii</i>)*
Leafy vegetables such as head and leaf lettuce, celery, spinach, radicchio, arugula, watercress, and others (including leafy <i>Brassica</i> vegetables such as mustard and collard greens, kale, bok choy, and related crops).	Downy mildew (<i>Bremia lactucae</i> , <i>Peronospora</i> spp.)* Powdery mildew (<i>Golovinomyces (Erysiphe) cichoracearum</i>)* Bacterial blights Head and leaf drop (<i>Sclerotinia</i> spp.) ² Pink rot (<i>Sclerotinia sclerotiorum</i>)* Leaf spots (<i>Cercospora</i> spp.) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Bottom rot (<i>Rhizoctonia solani</i>)

Legume vegetables succulent and dried beans and peas such as green, snap, shell, and Lima beans, garbanzo beans, chickpeas, soybeans, dry beans, peas, split peas, lentils, and other legumes.	White mold (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Microsphaera diffusa</i>) Rusts*, including <i>Uromyces appendiculatus</i> , <i>Puccinia</i> spp., and Asian soybean rust (<i>Phayospora pachyrhizi</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Root, tuber, and corm vegetables such as potato, sweet potato, carrot, cassava, beets, ginger, radish, horseradish ²² , ginseng, turnip, and other root, tuber and corm crops.	Black root/crown rot (<i>Alternaria</i> spp.) Bacterial leaf blight (<i>Xanthomonas campestris</i>) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Gray mold (<i>Botrytis</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Black leg /bacterial soft rot (<i>Erwinia carotovora</i>) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: Black scurf (<i>Rhizoctonia solani</i>) Cavity spot (<i>Pythium</i> spp.) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Other vegetables such as sweet corn, popcorn, asparagus, peanut, and watercress	<i>Botrytis</i> spp. Rusts (<i>Puccinia</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> and <i>Cercosporidium</i> spp.)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tree fruits and nuts	
Citrus such as orange, lemon, lime, grapefruit, tangerine (mandarin), tangelo, pummelo, and other citrus	<i>Alternaria</i> leaf spot (<i>Alternaria alternata</i>) Postbloom fruit drop (<i>Colletotrichum acutatum</i>)* Greasy spot (<i>Mycosphaerella citri</i>)* ³ Citrus canker (<i>Xanthomonas campestris</i> pv. <i>citri</i>) ¹ Scab (<i>Elsinoe fawcetti</i>)* ⁴ Melanose (<i>Diaporthe citri</i>)*
Pome fruits such as apple, pear, crabapple, quince, and others	Powdery mildew (<i>Podosphaera leucotricha</i>) ⁵ Scab (<i>Venturia</i> spp.)* Flyspeck (<i>Zygophiala jamaicensis</i>) ⁶ Sooty blotch disease complex ⁶ Brooks spot (<i>Mycosphaerella pomi</i>) ⁶ Bot rot/white rot (<i>Botryosphaeria dothidea</i>) ⁶ Bitter rot (<i>Colletotrichum</i> spp.) ⁶ Cedar apple rust (<i>Gymnosporangium juniperi-virginianae</i>) ⁶ Fire blight (<i>Erwinia amylovora</i>) ⁷
Stone fruits such as apricot, cherry, nectarine, peach, plum, prune, pluot, and others	Powdery mildew (<i>Sphaerotheca</i> and <i>Podosphaera</i> spp.)* ⁸ Bacterial canker (<i>Pseudomonas</i> spp.) Brown rot blossom blight (<i>Monilinia laxa</i>) ⁹ Brown rot (<i>Monilinia fructicola</i>)* ¹⁰ Gray mold (<i>Botrytis cinerea</i>) ¹⁰ Peach leaf curl (<i>Taphrina deformans</i>) Bacterial leaf spot (<i>Xanthomonas arbuticola</i> pv. <i>pruni</i>) ¹ Rusty spot (<i>Podosphaera leucotricha</i>) ¹
Tree nuts such as almond, pistachio, pecan, walnut, filbert, hazelnut, chestnut, macadamia, and other tree nuts.	Walnut blight (<i>Xanthomonas campestris</i>) ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>)* Bacterial canker (<i>Pseudomonas syringae</i>) Shot hole (<i>Wilsonomyces carpophilus</i>)* Brown rot (<i>Monilinia</i> spp.)* Pecan scab (<i>Cladosporium caryigenum</i>)* ¹



Pomegranates	Leaf and fruit spots (<i>Cercospora</i> , <i>Gloeosporium</i> and <i>Pestalotia</i> spp.) ¹ Fruit rots (<i>Alternaria</i> , <i>Botrytis</i> , and other spp.) ¹⁰ Powdery mildew (<i>Sphaerotheca pannosa</i>)
Other fruits	
Strawberry	Powdery mildew (<i>Sphaerotheca macularis</i> , <i>Erysiphe</i> spp.)* ¹² Gray mold (<i>Botrytis cinerea</i>)* ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>) Angular leaf spot (<i>Xanthomonas fragariae</i>) ¹ For the following diseases, see instructions below for "Soil application" (and also root dip instructions ²²): "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. Charcoal rot (<i>Macrophomina phaseolina</i>)
Berries , including blueberry, blackberry, raspberry, loganberry, huckleberry, gooseberry, elderberry, cranberry (non-flooded fields), current, and other berries	Mummy berry (<i>Monilinia vaccinii-corymbosi</i>)* Botrytis blight (<i>Botrytis cinerea</i>) Bacterial canker (<i>Pseudomonas</i> spp.) ¹³ Anthracnose fruit rot (<i>Colletotrichum acutatum</i>) ¹⁰
Grapes including wine grapes, table grapes, and raisins	Powdery mildew (<i>Erysiphe</i> (formerly <i>Uncinula</i>) <i>necator</i>) ¹⁴ Gray mold (<i>Botrytis cinerea</i>) ¹⁵ Sour rot complex ¹⁵ Downy mildew (<i>Plasmopara viticola</i>)* Phomopsis (<i>Phomopsis viticola</i>) ¹⁶ Eutypa (<i>Eutypa lata</i>) ¹⁷
Tropical fruits such as avocado ¹⁸ , mango ¹⁸ , papaya ¹⁹ , pineapple ¹⁹ , banana, plantain, and others.	Anthracnose (<i>Colletotrichum</i> spp.) Scab (<i>Sphaceloma perseae</i>) Bacterial canker (<i>Xanthomonas campestris</i>) Sigatoka (<i>Mycosphaerella fijiensis</i>) ²⁰
Other Crops	
Herbs and spices such as basil, thyme, coriander, dill, cilantro, parsley, mint, and others.	Powdery mildews (<i>Oidium</i> spp. and others) Downy mildews (<i>Peronospora</i> spp. and others)* Damping off diseases (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Alternaria</i> , and <i>Fusarium</i> spp.) Leaf spots (<i>Alternaria</i> , <i>Septoria</i> , <i>Colletotrichum</i> , and <i>Cercospora</i> spp.)* Bacterial diseases (<i>Erwinia</i> , <i>Xanthomonas</i> , and <i>Pseudomonas</i> spp.) Rusts (<i>Puccinia</i> spp. and others) "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Coffee	Coffee berry disease (<i>Colletotrichum coffeanum</i>) ¹ Coffee rust (<i>Hemileia vastatrix</i>) ¹ Anthracnose (<i>Colletotrichum</i> spp.) <i>Botrytis</i> flower blight <i>Cercospora</i> leaf spot and berry blotch "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tobacco	Angular leaf spot (<i>Pseudomonas</i> spp.) Anthracnose (<i>Colletotrichum</i> and <i>Glomerella</i> spp.) Blue mold or downy mildew (<i>Peronospora</i> spp.)* Brown spot (<i>Alternaria</i>) Barn spot/ frog-eye leaf spot (<i>Cercospora nicotianae</i>) ¹⁰ Collar rot (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Erysiphe cichoracearum</i>) Target spot (<i>Rhizoctonia solani</i>) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Oidium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.

	Charcoal rot (<i>Macrophomina phaseolina</i>) Black root rot (<i>Thielaviopsis basicola</i>) Black shank (<i>Phytophthora</i> spp.)* Southern blight/southern stem rot (<i>Sclerotium rolfsii</i>)*
Mint	Rust (<i>Puccinia</i> spp.)
Hops	Powdery mildew (<i>Sphaerotheca macularis</i>) ²¹
Footnotes: <p>*Suppression only; for improved control mix or rotate with chemical fungicide approved for such use.</p> <p>¹ Tank mix or rotate with copper-based fungicides at label rates for improved control.</p> <p>² Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist.</p> <p>³ For greasy spot suppression, apply at first new foliar flush and repeat with each new flush. Tank mix with spray oil or copper based fungicide at labeled rates.</p> <p>⁴ For suppression of citrus scab, start applications at first new foliage flush and repeat at petal fall and when fruit are ½ inch in diameter.</p> <p>⁵ Make first application at or before tight cluster if conditions favor disease development. Repeat at 7-10 day intervals through the second cover spray or longer on susceptible varieties or if environmental conditions favor rapid disease development.</p> <p>⁶ Begin applications before bloom when environmental conditions favor disease development, repeating at 7 to 14 day intervals or as needed. Control may be enhanced by addition of a surfactant to improve spray coverage. Use only surfactants known to be safe for use on the crop and for which such use is allowed.</p> <p>⁷ Rotate with antibiotics registered for fire blight control for improved performance. Begin applications at 1-5% open blossoms and repeat every 3-7 days as necessary until petal fall, when intervals can be increased to 7 days. CX-9032 can also be used in summer "cover spray" applications to control the shoot blight phase of fire blight and summer diseases. Can be mixed with copper fungicides to improve control.</p> <p>⁸ Make first application at popcorn stage and repeat every 7 days.</p> <p>⁹ Start applying at early bloom stage and repeat every 7 days through petal fall.</p> <p>¹⁰ Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections.</p> <p>¹¹ Begin applications at or before pistillate bloom, repeating every 7-10 days. Apply before rainfall if possible, and tank mix or rotate with a copper-based bactericide registered for such use for improved control.</p> <p>¹² Start applications at or just before flowering and repeat every 7-10 days as needed through harvest.</p> <p>¹³ Apply before fall rains and again during dormancy before spring growth.</p> <p>¹⁴ Start applications when new shoots are ½ to 1½ inches long. Repeat at 3-5 inches, 8-10 inches, and then at 7-10 day intervals until disease conditions no longer exist.</p> <p>¹⁵ Apply at bloom, before bunch closure, at veraison, and before harvest.</p> <p>¹⁶ Apply when shoots are ½ to 1 inch long and again when 6-8 inches long.</p> <p>¹⁷ Mix 2 fluid ounces CX-9032 per gallon of water and apply to pruning wounds.</p> <p>¹⁸ Apply at budbreak and repeat on 14-21 day interval as needed through harvest.</p> <p>¹⁹ Apply at flowering and repeat on 14-21 day interval as needed through harvest.</p> <p>²⁰ Apply at first appearance of leaves and repeat at 7-21 day intervals as needed, in sufficient water to obtain thorough coverage of foliage. Tank mix with spray oil or other registered fungicides for improved control.</p> <p>²¹ Mix 6 to 10 fluid ounces CX-9032 per 100 gallons of water and apply in minimum of 20 gallons per acre from emergence to training, 50 gallons per acre from training to wire, and 100 gallons per acre from wire touch through harvest.</p> <p>²² For treatment of horseradish or strawberry roots immediately before transplanting: immerse bare roots (individually or in bunches) for 10 seconds in a suspension of 1 to 2 pints CX-9032 per gallon of water.</p>	

Foliar application: For control of diseases on foliage, flowers, fruit, or other above-ground parts of plants: Mix CX-9032 in water and apply as a spray at a rate of 0.5 to 6 quarts of CX-9032 per acre in sufficient water to achieve thorough coverage of the crop canopy with minimal runoff. Begin applications at crop emergence, transplanting, or when conditions are conducive to development of disease. Repeat application every 3 to 10 days, or as needed, for as long as conditions favor disease development. Lower rates (0.5 to 3 quarts per acre) may be applied under light disease pressure, to smaller (e.g. newly-emerged) plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease

development, use higher label rates (3-6 quarts/acre), apply more frequently (every 3-7 days), and mix or rotate CX-9032 with other fungicides for improved performance.

Soil application: For control of soilborne diseases infecting seeds, seedlings, roots, crown, stems, or other plant parts below ground or in contact with soil: Apply CX-9032 at **0.5 to 4.5 pints per acre**. Mix the required amount in sufficient water to apply by one of the following methods:

- Soil drench applied to transplants in flats or pots in the greenhouse or nursery any time prior to transplanting (see additional drench instructions under “Nurseries, greenhouses, shade houses, and ornamental plants” below).
- Soil drench at transplanting, using a “water wheel” injector, spray nozzles/hoses, or other method to drench each root ball and/or planting hole.
- Soil or seedline drench, or banded spray (in-furrow) at planting. See the section on “Banded (in-furrow) application” below for additional instructions.

Follow-up (post-planting) preventative applications can be made every 2-4 weeks by one or more of the following methods, if needed:

- Drip (trickle) or any type of sprinkler irrigation, any time after planting or transplanting. See Chemigation Instructions for additional information.
- Spray directly onto the soil surface and/or lower plant parts. If targeting root disease, follow immediately with sufficient overhead sprinkler irrigation to move CX-9032 to the root zone.
- Injection directly into the rooting zone using shanks or similar equipment.

Lower rates (0.5 to 2 pints of CX-9032 per acre) may be applied under light disease pressure, to smaller plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (2 - 4.5 pints per acre), apply more frequently (every 2 weeks), and mix or rotate CX-9032 with other fungicides for improved performance.

Banded (in-furrow) application: Use the table below (rate CX-9032 per acre) to determine the correct application rate in fluid ounces per 1,000 row feet based on row spacing and desired rate per acre. Mix the required amount of CX-9032 in water and apply as banded spray (4” to 6” wide) or seedline drench centered over the planting furrow. Apply directly over seeds in the furrow just before they are covered with soil. The volume of water required per acre or per 1,000 row feet will depend on the application equipment used. Consult your local cooperative extension service if you need assistance calibrating band spraying equipment.

	12"	15"	18"	20"	24"
1.0	1.0	0.8	0.7	0.6	0.5
2.0	2.0	1.6	1.4	1.2	1.0
3.0	3.0	2.4	2.1	1.8	1.5
4.0	4.0	3.2	2.8	2.4	2.0
5.0	5.0	4.0	3.5	3.0	2.5
6.0	6.0	4.8	4.2	3.6	3.0
7.0	7.0	5.6	4.9	4.2	3.5
8.0	8.0	6.4	5.6	4.8	4.0
9.0	9.0	7.2	6.3	5.4	4.5
10.0	10.0	8.0	7.0	6.0	5.0

Rates for banded (in-furrow) application: Find desired application rate of CX-9032 per acre in the left column. Read across that line to the correct row spacing indicated at the top to find the number of fluid ounces per 1,000 row feet that will provide the desired application rate per acre.

CX-9032 rate/acre		Space between rows (inches)														
Pints	fl oz	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
0.5	8	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
0.75	12	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
1.0	16	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2
1.25	20	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.5
1.5	24	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8
1.75	28	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
2.0	32	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2.25	36	0.8	1.0	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	2.3	2.5	2.6	2.8
2.5	40	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9	3.1
2.75	44	1.0	1.2	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2	3.4
3.0	48	1.1	1.3	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.5	3.7
3.25	52	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
3.5	56	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.3
3.75	60	1.4	1.6	1.8	2.1	2.3	2.5	2.8	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6
4.0	64	1.5	1.7	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
4.25	68	1.6	1.8	2.1	2.3	2.6	2.9	3.1	3.4	3.6	3.9	4.2	4.4	4.7	4.9	5.2
4.5	72	1.7	1.9	2.2	2.5	2.8	3.0	3.3	3.6	3.9	4.1	4.4	4.7	5.0	5.2	5.5

Nurseries, greenhouses, shadehouses, and ornamental plants

Spray application: Mix 0.5 to 6 quarts of CX-9032 per 100 gallons of water and apply as a foliar spray of sufficient volume to wet the entire plant with minimal runoff. Begin preventative applications at plant emergence and repeat every 3-28 days as needed (every 3-7 days if disease pressure is high or environmental conditions are highly favorable to disease outbreak, 10-28 days under low pressure or less conducive conditions).

Drench application: Mix 0.5 to 4.5 pints of CX-9032 per 100 gallons of water and apply as a drench or coarse spray to soil or other growing media in pots, flats, plugs, trays, or planting beds, for control or suppression of soilborne diseases of seedlings, cuttings, bedding plants, and transplants (including vegetables and other transplanted food crops). Make first application at or immediately before seeding, sticking, germination, or transplanting. Repeat applications every 14-28 days as needed. Transplants can be treated immediately before transplanting into field soils to protect against damping-off and other diseases that reduce plant establishment.

Cutting or root dip: Dip basal end of cuttings or bare roots (individually or in bunches) in a suspension of 1 to 2 pints of CX-9032 per gallon of water. Immerse for 5-10 seconds immediately before planting.

Chemigation: Mix 0.5 to 4.5 pints of CX-9032 per 100 gallons of water and apply via drip, handheld, or sprinkler irrigation systems. Refer to "Chemigation Instructions" for more details.

CROPS/USE SITES	DISEASES/PATHOGENS
Indoor, outdoor, and shade- or other cover-grown ornamental trees and shrubs, flowering plants, foliage plants, tropical plants, potted plants, potted or cut flowers, bedding plants, forestry seedlings, conifer production for reforestation, fruit trees, vegetables and other crops grown in greenhouses or nurseries.	Powdery mildews caused by <i>Erysiphe</i> , <i>Podosphaera</i> , <i>Sphaerotheca</i> , <i>Oidium</i> , and <i>Golovinomyces</i> spp. Anthracnose (<i>Colletotrichum</i> spp.) Bacterial leaf spots caused by <i>Erwinia</i> , <i>Pseudomonas</i> , and <i>Xanthomonas</i> spp. Damping-off disease (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> spp.) Late blight, blackeye, and root rots caused by <i>Phytophthora</i> spp. Gray mold and blight caused by <i>Botrytis cinerea</i> Black root rot (<i>Aspergillus</i> spp.) Black spot of roses (<i>Diplocarpon rosae</i>) Downy mildew (<i>Peronospora</i> spp.) Leaf spots caused by <i>Alternaria</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Entomosporium</i> , <i>Helminthosporium</i> , and <i>Myrothecium</i> spp.) Rust (<i>Puccinia</i> spp.) Scab (<i>Venturia</i> spp.) Root rot, bottom rot, or stem rot caused by <i>Rhizoctonia solani</i> <i>Sclerotinia</i> blight <i>Fusarium</i> wilts

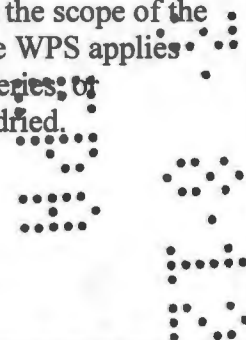
Turfgrass application

For control of foliar diseases, apply CX-9032 at **1 to 4 fluid ounces per 1,000 square feet** as a ground-directed spray in sufficient water to provide thorough coverage. To control root and crown diseases in or on the soil, immediately follow the spray with sufficient overhead sprinkler irrigation to move the product into the root zone.

USE SITES/CROPS	DISEASES/PATHOGENS
Turf, sod, lawns, golf course (fairways, roughs, greens, tees), grass seed production Including but not limited to: Bluegrass, Bentgrass, Bermudagrass (common & hybrid), Dichondra, Fescue, Orchardgrass, <i>Poa annua</i> , St. Augustine grass, Ryegrass, <i>Zoysia</i> , mixtures, and other grasses or ornamental turf	Anthracnose (<i>Colletotrichum graminicola</i>) Brown patch (<i>Rhizoctonia solani</i>) Dollar spot (<i>Lanzia</i> and <i>Moellerodiscus</i> spp., formerly <i>Sclerotinia homeocarpa</i>) Powdery mildew (<i>Erysiphe graminis</i>) Rust (<i>Puccinia</i> spp.) Gray leaf spot (<i>Pyricularia grisea</i>) "Damping off" or seedling blights caused by <i>Pythium</i>

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep unprotected persons out of treated areas until sprays have dried.



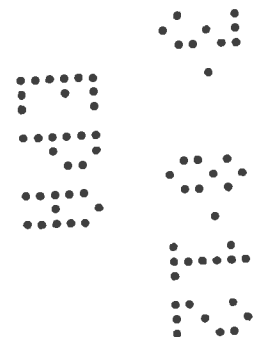
STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of onsite or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.



CHEMIGATION INSTRUCTIONS

General information:

Apply this product only through drip (trickle) irrigation (including micro-irrigation through spaghetti tubes or individual tubes) or sprinkler irrigation (including impact or microsprinklers, microjet, overhead boom, water gun, solid set, lateral move, end tow, side-roll, center pivot, or hand move, including mist-type systems); or with hand-held calibrated irrigation equipment (such as a hand-held wand with injector). Do not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and injector system and flush with clean water before use. Failure to provide a clean tank, free of scale or residues may reduce effectiveness of this product.

Drip (trickle) and micro-irrigation chemigation

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.

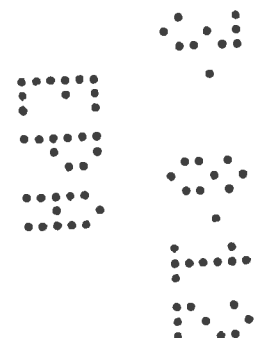
Sprinkler chemigation:

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

WARRANTY

Certis USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purpose referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the disease problem, condition of the crop, incompatibility with other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage, or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.



MASTER LABEL
SUBLABEL B: Residential Use

OMRI placeholder

CX-9032

Aqueous Suspension Biofungicide/Bactericide for control of plant diseases in home gardens: vegetables, ornamental and fruit trees, shrubs, lawns, flowers, bedding plants, and potted ornamental plants

FOR ORGANIC GARDENING

Active Ingredient:

Bacillus amyloliquefaciens strain D747* 98.85 %

Other Ingredients 1.15 %

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.
9145 Guilford Rd., Suite. 175
Columbia, MD 21046

NET CONTENTS:

Lot No.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS (AND DOMESTIC ANIMALS): CAUTION:

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor. Hot Line No.: 1-800-255-3924 for additional information

ENVIRONMENTAL HAZARDS:

To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Mixing instructions:

CX-9032 must be mixed with water and applied as a spray to fruit and foliage, or as a drench to plant roots. See below for specific mix rate information.

Application rates and methods:

Spray application for control of powdery mildews, leaf spots, anthracnose, gray mold, and other diseases affecting leaves, flowers, fruit, and other above-ground plant parts of home garden plants: Mix 1 teaspoon of CX-9032 per gallon of water and apply directly to plants using a hand pump sprayer or other suitable spray equipment. Spray just enough to wet all leaves and fruit with minimal run-off or dripping. Total coverage depends on the size of plants to be sprayed and the type of sprayer used. Repeat as needed to maintain disease control, typically every 7-10 days. If disease is prevalent or environmental conditions such as high humidity favor disease outbreak, increase the mixing rate to 1 tablespoon per gallon and shorten the interval between sprays to every 3-7 days.

Drench application for control of diseases affecting plant roots, tubers, or other parts of plants in contact with soil in the home garden: Mix 1 teaspoon of CX-9032 per gallon of water and apply to the soil by one of the following methods:

1. For potted plants (indoors or outdoors), apply in sufficient water to wet the entire root mass using a watering can or tank-fed watering wand. Do not water plants again until 24 hours after application. Alternatively, use a hand-pump or other sprayer to spray the mixture on the soil surface in each pot, then immediately apply sufficient water to move the product into the roots.

2. Drench the roots of transplants with approx. 4 fluid ounces of the mixture immediately before transplanting into pots or garden soil. Allow to soak into the root ball before transplanting.
3. For outdoor-grown plants, use a watering can or sprayer to drench the soil in the planting furrow or transplant hole immediately before planting or transplanting. The amount of water required will depend on the size of the hole or length of furrow.
4. Alternatively, apply in the first watering after planting or transplanting, either by mixing directly into the water at the rate indicated above, or by spraying onto the soil surface at the base of each plant and immediately watering in with a watering can, hose, sprinkler, or other watering device.

CX-9032 can be applied up to and including the day of harvest.

For application to lawns and other grass areas: Mix 1 teaspoon of CX-9032 per gallon of water and apply as a fine spray to the surface of the lawn or grass area. Total amount of mix required will depend on the type of sprayer used and area to be covered, but typically 2 to 5 gallons of spray mix may be required per 1,000 square feet of lawn. CX-9032 can be "watered in" for control of soilborne root and crown diseases by thorough watering immediately after application either with sprinklers or by spraying just before or during light rain.

STORAGE AND DISPOSAL

PESTICIDE STORAGE:

Keep in original container. Store away from direct sunlight, feed, or foodstuffs. Keep container tightly sealed when not in use.

PESTICIDE DISPOSAL AND CONTAINER HANDLING

Non-refillable container. Do not reuse or refill container.

If empty:

Place in trash or offer for recycling, if available.

If partly filled:

Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY

Certis USA L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the insect problem, condition of the crop, incompatibility with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

CERTIS

Certis USA
9145 Guilford Road
Suite 175
Columbia, MD 21046

(301) 604-7340

Fax: 301-604-7015
www.certisusa.com

March 8, 2012

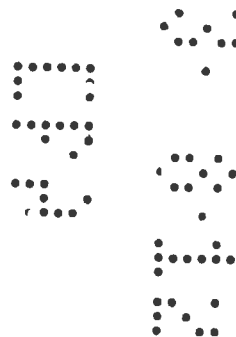
RECEIPT

Submission: Certis USA LLC
Notification of Additional Brand Name
CX-9032; EPA Registration No.: 70051-107; Double Nickel LC

Attention: Sheryl K. Reilly, Ph.D
Chief

Address: U.S. Environmental Protection Agency
Microbial Pesticides Branch
Office of Pesticide Programs
Biopesticides and Pollution Prevention Division (7504P)
Room S-4900, One Potomac Yard
2777 South Crystal Drive
Arlington, VA 22202-4501

Mail Enclosures Received by:



Signature

Date and Time

Receipt for Section 3					
S:	813076		Resubmission:	<input type="radio"/> Yes <input checked="" type="radio"/> No	
Regulatory Type:	Product Registration - Section 3		Fee For Service:	<input checked="" type="radio"/> Yes <input type="radio"/> No	
Application Type:	Notification				
Company:	70051 CERTIS USA, LLC		V		
Risk Manager:	Biologicals & Pollution Prevention Division, PM Team 92				
Product #:	70051-107	Product Name:	CX-8032		
Override#:					
Me Too Section3:		Me Too Product Name:			
Application Date:	05-Mar-2012	OPP Rec'vd Date:	08-Mar-2012		
Front End Date:	08-Mar-2012	Risk Manager Send Date:	08-Mar-2012		
FFS Due Date:		Negotiated Due Date:			
OPP Target Date:					
Fast Track:	<input type="checkbox"/>	New Ingredient:	<input type="checkbox"/>		
Receipt Description:			View/Edit		
Notification of Additional Brand Name			New Ingredient Request Date:		
			New Ingredient Received Date:		
			Signature Date:		
Form A:	<input type="checkbox"/>	Signature Date:		Form B:	<input type="checkbox"/>
			Signature Date:		

Print Letter
 Enter More Information
 Tracking

Receipt Content
 Paper Label
 Des

Mary
332: Notification



United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☐ Amendment
☒ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 70051-107	2. EPA Product Manager Reynolds	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) CX-9032	PM# Microbial Pest Branch	
5. Name and Address of Applicant (Include ZIP Code) Certis U.S.A., L.L.C. 9145 Guilford Road, Suite 175 Columbia, Maryland 21046 <input type="checkbox"/> Check if this is a new address		6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: Notification Accepted EPA Reg. No. _____ Product Name _____ Date: 04/06/2012 Reviewer: m j Foster

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

Submission of Alternate Brand Name (Double Nickel LC).. No other changes to the EPA stamped label. See attached certification statement.

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal <input type="checkbox"/> Plastic <input type="checkbox"/> Glass <input type="checkbox"/> Paper <input type="checkbox"/> Other (Specify) _____	
* Certification must be submitted		If "Yes" Unit Packaging wgt.	No. per container	If "Yes" Package wgt	No. per container
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 2.5G		5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed to Product <input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled		<input type="checkbox"/> Other _____			

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Christine A. Dively	Title Director of Reg. Affairs	Telephone No. (Include Area Code) 301-483-3806
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.		6. Date Application Received (Stamped)
2. Signature 	3. Title Director of Regulatory Affairs	
4. Typed Name Christine A. Dively	5. Date March 2, 2012	



Certis USA, L.L.C.
9145 Guilford Road
Suite 175
Columbia, MD 21046
(301) 604-7340
FAX (301) 604-7015
www.certisusa.com

Hand-Delivered

March 5, 2012

Sheryl Reilly, Ph.D., Chief
Microbial Pesticides Branch
Biopesticides & Pollution Prevention Division (7504P)
Office of Pesticide Programs
US Environmental Protection Agency

Re: Certis U.S.A., L.L.C.
Notification of Additional Brand Name
CX-9032: EPA Registration Number 70051-107: Double Nickel LC

Dear Dr. Reilly:

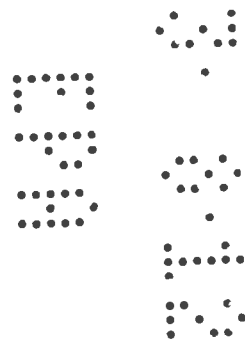
On behalf of Certis U.S.A., L.L.C. (9145 Guilford Road, Suite 175, Columbia, Maryland 21046), I respectfully submit a *Notification for CX-9032*, to provide the additional brand name, Double Nickel LC. No other changes have been made to the EPA stamped label, dated December 16, 2011.

Please do not hesitate to contact me if you have any questions about this submission. I can be reached by telephone at 301-483-3806 or by email at cdively@certisusa.com.

Sincerely,

Christine A. Dively
Director of Regulatory Affairs
Certis USA

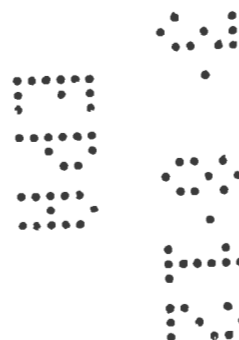
enclosure



NOTIFICATION STATEMENT

CX-9032 EPA Reg. No. 70051-107-- in compliance with PR Notice 98-10

"This notification is consistent with the provisions of PR Notice 98-10 and EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA."



MASTER LABEL
SUBLABEL A: Agricultural Use

place holder for OMRI Seal

CX-9032

(alternate brand names: **Double Tap 55, Amylo-X AS, Double Nickel LC**)

Aqueous Suspension Biofungicide/Bactericide

FOR ORGANIC PRODUCTION

Active Ingredient:

Bacillus amyloliquefaciens strain D747* 98.85 %

Other Ingredients 1.15%

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS: 2.5 Gallons

Lot No.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product label with you when calling a poison control center or doctor.

Hot Line No.: 1-800-255-3924 for additional information

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco and using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow manufacturer's instructions for cleaning and maintaining PPE. If no instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides, the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticides get inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For Terrestrial Uses: Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

CX-9032 can be applied alone or in combination and/or rotation with chemical fungicides as a tool for integrated disease management in agricultural crops, ornamental and nursery plants, and turfgrass. CX-9032 offers a valuable tool for management of resistance to chemical fungicides through its multiple and unique modes of action.

CX-9032 can be applied up to and including the day of harvest.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is: coveralls, waterproof gloves, shoes plus socks.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

MIXING AND HANDLING INSTRUCTIONS

Mix the required amount of CX-9032 in water with sufficient agitation to maintain a uniform suspension in the spray or mixing tank. Tank should be cleaned prior to use. Do not use highly alkaline or highly acidic water to mix sprays. Use a buffering agent if necessary to maintain neutrality (pH 6 to 8) of water in the tank. Maintain agitation during application. Apply immediately after mixing; do not allow spray mix to stand overnight.

CX-9032 can be mixed and used with other agricultural chemicals for which such mixing is permitted by the product labels, in accordance with the most restrictive of those label limitations and precautions. If such a mixture is planned, a compatibility "jar test" should first be conducted by mixing the correct proportions of CX-9032 and these products in a small volume of water.

APPLICATION METHODS

Ground: CX-9032 can be applied in most commonly-used ground application equipment, such as (but not limited to): tractor-mounted boom, airblast, high clearance, hose-end, backpack, and other pressurized sprayers; hose-end or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method.

APPLICATION METHODS (cont.)

Aerial: CX-9032 can be applied by fixed or rotary winged aircraft in a minimum of 3 gallons of water per acre. Standard precautions should be taken to minimize spray drift.

Chemigation: CX-9032 can be applied through drip (trickle) and sprinkler type irrigation equipment. Refer to the section entitled "Chemigation Instructions" for detailed instructions.

Agricultural crops

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Vegetables and melons:	
Brassica vegetables such as broccoli, cabbage, cauliflower, Brussels sprouts, kohlrabi, and other cole crops.	Pin rot complex (<i>Alternaria/Xanthomonas</i>)* Leaf spots (<i>Alternaria</i> spp., <i>Xanthomonas</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe polygoni</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Bulb vegetables such as onions, garlic, shallots, and others.	<i>Botrytis</i> spp. (neck rot, leaf blight) Purple blotch (<i>Alternaria</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Rust (<i>Puccinia porii</i>)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Cucurbits such as cucumbers, squash (all types), cantaloupes, muskmelons, watermelons, and other melons.	Powdery mildew (<i>Erysiphe</i> and <i>Sphaerotheca</i> spp.) Downy mildew (<i>Pseudoperonospora</i> spp.) Gummy stem blight (<i>Didymella bryoniae</i> and <i>Phoma cucurbitacearum</i>) See instructions below for "Soil application" against the following diseases: Vine decline (<i>Monosporascus cannonballus</i>) Charcoal rot (<i>Macrophomina phaseoli</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Fruiting vegetables such as tomatoes, peppers, eggplant, tomatillo, okra, and others.	Bacterial spot (<i>Xanthomonas</i> spp.)* ¹ Bacterial speck (<i>Pseudomonas syringae</i> pv. <i>tomato</i>)* ¹ Gray mold (<i>Botrytis cinerea</i>) Powdery mildew* (<i>Leveillula</i> , <i>Oidiopsis</i> , <i>Erysiphe</i> , and <i>Sphaerotheca</i> spp.) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Southern blight (<i>Sclerotium rolfsii</i>)*
Leafy vegetables such as head and leaf lettuce, celery, spinach, radicchio, arugula, watercress, and others (including leafy <i>Brassica</i> vegetables such as mustard and collard greens, kale, bok choy, and related crops).	Downy mildew (<i>Bremia lactucae</i> , <i>Peronospora</i> spp.)* Powdery mildew (<i>Golovinomyces</i> (<i>Erysiphe</i>) <i>cichoracearum</i>)* Bacterial blights Head and leaf drop (<i>Sclerotinia</i> spp.)* ² Pink rot (<i>Sclerotinia sclerotiorum</i>)* ² Leaf spots (<i>Cercospora</i> spp.) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Bottom rot (<i>Rhizoctonia solani</i>)

Legume vegetables succulent and dried beans and peas such as green, snap, shell, and Lima beans, garbanzo beans, chickpeas, soybeans, dry beans, peas, split peas, lentils, and other legumes.	White mold (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Microsphaera diffusa</i>) Rusts*, including <i>Uromyces appendiculatus</i> , <i>Puccinia</i> spp., and Asian soybean rust (<i>Phayospora pachyrhizi</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Root, tuber, and corm vegetables such as potato, sweet potato, carrot, cassava, beets, ginger, radish, horseradish ²² , ginseng, turnip, and other root, tuber and corm crops.	Black root/crown rot (<i>Alternaria</i> spp.) Bacterial leaf blight (<i>Xanthomonas campestris</i>) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Gray mold (<i>Botrytis</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Black leg/bacterial soft rot (<i>Erwinia carotovora</i>) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: Black scurf (<i>Rhizoctonia solani</i>) Cavity spot (<i>Pythium</i> spp.) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Other vegetables such as sweet corn, popcorn, asparagus, peanut, and watercress	<i>Botrytis</i> spp. Rusts (<i>Puccinia</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> and <i>Cercosporidium</i> spp.)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tree fruits and nuts	
Citrus such as orange, lemon, lime, grapefruit, tangerine (mandarin), tangelo, pummelo, and other citrus	<i>Alternaria</i> leaf spot (<i>Alternaria alternata</i>) Postbloom fruit drop (<i>Colletotrichum acutatum</i>)* Greasy spot (<i>Mycosphaerella citri</i>)* ³ Citrus canker (<i>Xanthomonas campestris</i> pv. <i>citri</i>) ¹ Scab (<i>Elsinoe fawcetti</i>)* ⁴ Melanose (<i>Diaporthe citri</i>)*
Pome fruits such as apple, pear, crabapple, quince, and others	Powdery mildew (<i>Podosphaera leucotricha</i>) ⁵ Scab (<i>Venturia</i> spp.)* Flayspeck (<i>Zygophiala jamaicensis</i>) ⁶ Sooty blotch disease complex ⁶ Brooks spot (<i>Mycosphaerella pomi</i>) ⁶ Bot rot/white rot (<i>Botryosphaeria dothidea</i>) ⁶ Bitter rot (<i>Colletotrichum</i> spp.) ⁶ Cedar apple rust (<i>Gymnosporangium juniperi-virginianae</i>) ⁶ Fire blight (<i>Erwinia amylovora</i>)* ⁷
Stone fruits such as apricot, cherry, nectarine, peach, plum, prune, pluot, and others	Powdery mildew (<i>Sphaerotheca</i> and <i>Podosphaera</i> spp.)* ⁸ Bacterial canker (<i>Pseudomonas</i> spp.) Brown rot blossom blight (<i>Monilinia laxa</i>) ⁹ Brown rot (<i>Monilinia fructicola</i>)* ¹⁰ Gray mold (<i>Botrytis cinerea</i>) ¹⁰ Peach leaf curl (<i>Taphrina deformans</i>) Bacterial leaf spot (<i>Xanthomonas arbuticola</i> pv. <i>pruni</i>) ¹ Rusty spot (<i>Podosphaera leucotricha</i>) ¹
Tree nuts such as almond, pistachio, pecan, walnut, filbert, hazelnut, chestnut, macadamia, and other tree nuts.	Walnut blight (<i>Xanthomonas campestris</i>) ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>)* Bacterial canker (<i>Pseudomonas syringae</i>) Shot hole (<i>Wilsonomyces carpophilus</i>)* Brown rot (<i>Monilinia</i> spp.)* Pecan scab (<i>Cladosporium caryigenum</i>)* ¹

Pomegranates	<p>Leaf and fruit spots (<i>Cercospora</i>, <i>Gloeosporium</i> and <i>Pestalotia</i> spp.)¹</p> <p>Fruit rots (<i>Alternaria</i>, <i>Botrytis</i>, and other spp.)¹⁰</p> <p>Powdery mildew (<i>Sphaerotheca pannosa</i>)</p>
Other fruits	
Strawberry	<p>Powdery mildew (<i>Sphaerotheca macularis</i>, <i>Erysiphe</i> spp.)^{*12}</p> <p>Gray mold (<i>Botrytis cinerea</i>)^{*11}</p> <p>Anthrachnose (<i>Colletotrichum acutatum</i>)</p> <p>Angular leaf spot (<i>Xanthomonas fragariae</i>)¹</p> <p>For the following diseases, see instructions below for "Soil application" (and also root dip instructions²²):</p> <p>"Damping off" and root or crown diseases caused by <i>Rhizoctonia</i>, <i>Fusarium</i>, <i>Pythium</i>, <i>Phytophthora</i>, and/or <i>Verticillium</i>* spp.</p> <p>Charcoal rot (<i>Macrophomina phaseolina</i>)</p>
Berries , including blueberry, blackberry, raspberry, loganberry, huckleberry, gooseberry, elderberry, cranberry (non-flooded fields), current, and other berries	<p>Mummy berry (<i>Monilinia vaccinii-corymbosi</i>)[*]</p> <p>Botrytis blight (<i>Botrytis cinerea</i>)</p> <p>Bacterial canker (<i>Pseudomonas</i> spp.)¹³</p> <p>Anthrachnose fruit rot (<i>Colletotrichum acutatum</i>)¹⁰</p>
Grapes including wine grapes, table grapes, and raisins	<p>Powdery mildew (<i>Erysiphe</i> (formerly <i>Uncinula</i>) <i>necator</i>)¹⁴</p> <p>Gray mold (<i>Botrytis cinerea</i>)¹⁵</p> <p>Sour rot complex¹⁵</p> <p>Downy mildew (<i>Plasmopara viticola</i>)[*]</p> <p>Phomopsis (<i>Phomopsis viticola</i>)¹⁶</p> <p>Eutypa (<i>Eutypa lata</i>)¹⁷</p>
Tropical fruits such as avocado ¹⁸ , mango ¹⁸ , papaya ¹⁹ , pineapple ¹⁹ , banana, plantain, and others.	<p>Anthrachnose (<i>Colletotrichum</i> spp.)</p> <p>Scab (<i>Sphaceloma perseae</i>)</p> <p>Bacterial canker (<i>Xanthomonas campestris</i>)</p> <p>Sigatoka (<i>Mycosphaerella fijiensis</i>)²⁰</p>
Other Crops	
Herbs and spices such as basil, thyme, coriander, dill, cilantro, parsley, mint, and others.	<p>Powdery mildews (<i>Oidium</i> spp. and others)</p> <p>Downy mildews (<i>Peronospora</i> spp. and others)[*]</p> <p>Damping off diseases (<i>Rhizoctonia</i>, <i>Pythium</i>, <i>Alternaria</i>, and <i>Fusarium</i> spp.)</p> <p>Leaf spots (<i>Alternaria</i>, <i>Septoria</i>, <i>Colletotrichum</i>, and <i>Cercospora</i> spp.)[*]</p> <p>Bacterial diseases (<i>Erwinia</i>, <i>Xanthomonas</i>, and <i>Pseudomonas</i> spp.)</p> <p>Rusts (<i>Puccinia</i> spp. and others)</p> <p>"Damping off" and root or crown diseases caused by <i>Rhizoctonia</i>, <i>Fusarium</i>, <i>Pythium</i>, <i>Phytophthora</i>, and/or <i>Verticillium</i>* spp. (see instructions below for "Soil application").</p>
Coffee	<p>Coffee berry disease (<i>Colletotrichum coffeanum</i>)¹</p> <p>Coffee rust (<i>Hemileia vastatrix</i>)¹</p> <p>Anthrachnose (<i>Colletotrichum</i> spp.)</p> <p><i>Botrytis</i> flower blight</p> <p><i>Cercospora</i> leaf spot and berry blotch</p> <p>"Damping off" and root or crown diseases caused by <i>Rhizoctonia</i>, <i>Fusarium</i>, <i>Pythium</i>, <i>Phytophthora</i>, and/or <i>Verticillium</i>* spp. (see instructions below for "Soil application").</p>
Tobacco	<p>Angular leaf spot (<i>Pseudomonas</i> spp.)</p> <p>Anthrachnose (<i>Colletotrichum</i> and <i>Glomerella</i> spp.)</p> <p>Blue mold or downy mildew (<i>Peronospora</i> spp.)[*]</p> <p>Brown spot (<i>Alternaria</i>)</p> <p>Barn spot/ frog-eye leaf spot (<i>Cercospora nicotianae</i>)¹⁰</p> <p>Collar rot (<i>Sclerotinia sclerotiorum</i>)²</p> <p>Gray mold (<i>Botrytis cinerea</i>)</p> <p>Powdery mildew (<i>Erysiphe cichoracearum</i>)</p> <p>Target spot (<i>Rhizoctonia solani</i>)</p> <p>See instructions below for "Soil application" against the following diseases:</p> <p>"Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i>, <i>Rhizoctonia</i>, <i>Fusarium</i>, <i>Olpidium</i>, <i>Phytophthora</i>, or <i>Verticillium</i>* spp.</p>

	Charcoal rot (<i>Macrophomina phaseolina</i>) Black root rot (<i>Thielaviopsis basicola</i>) Black shank (<i>Phytophthora</i> spp.)* Southern blight/southern stem rot (<i>Sclerotium rolfsii</i>)*
Mint	Rust (<i>Puccinia</i> spp.)
Hops	Powdery mildew (<i>Sphaerotheca macularis</i>) ²¹
<p>Footnotes:</p> <p>*Suppression only; for improved control mix or rotate with chemical fungicide approved for such use.</p> <p>¹ Tank mix or rotate with copper-based fungicides at label rates for improved control.</p> <p>² Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist.</p> <p>³ For greasy spot suppression, apply at first new foliar flush and repeat with each new flush. Tank mix with spray oil or copper based fungicide at labeled rates.</p> <p>⁴ For suppression of citrus scab, start applications at first new foliage flush and repeat at petal fall and when fruit are ½ inch in diameter.</p> <p>⁵ Make first application at or before tight cluster if conditions favor disease development. Repeat at 7-10 day intervals through the second cover spray or longer on susceptible varieties or if environmental conditions favor rapid disease development.</p> <p>⁶ Begin applications before bloom when environmental conditions favor disease development, repeating at 7 to 14 day intervals or as needed. Control may be enhanced by addition of a surfactant to improve spray coverage. Use only surfactants known to be safe for use on the crop and for which such use is allowed.</p> <p>⁷ Rotate with antibiotics registered for fire blight control for improved performance. Begin applications at 1-5% open blossoms and repeat every 3-7 days as necessary until petal fall, when intervals can be increased to 7 days. CX-9032 can also be used in summer "cover spray" applications to control the shoot blight phase of fire blight and summer diseases. Can be mixed with copper fungicides to improve control.</p> <p>⁸ Make first application at popcorn stage and repeat every 7 days.</p> <p>⁹ Start applying at early bloom stage and repeat every 7 days through petal fall.</p> <p>¹⁰ Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections.</p> <p>¹¹ Begin applications at or before pistillate bloom, repeating every 7-10 days. Apply before rainfall if possible, and tank mix or rotate with a copper-based bactericide registered for such use for improved control.</p> <p>¹² Start applications at or just before flowering and repeat every 7-10 days as needed through harvest.</p> <p>¹³ Apply before fall rains and again during dormancy before spring growth.</p> <p>¹⁴ Start applications when new shoots are ½ to 1½ inches long. Repeat at 3-5 inches, 8-10 inches, and then at 7-10 day intervals until disease conditions no longer exist.</p> <p>¹⁵ Apply at bloom, before bunch closure, at veraison, and before harvest.</p> <p>¹⁶ Apply when shoots are ½ to 1 inch long and again when 6-8 inches long.</p> <p>¹⁷ Mix 2 fluid ounces CX-9032 per gallon of water and apply to pruning wounds.</p> <p>¹⁸ Apply at budbreak and repeat on 14-21 day interval as needed through harvest.</p> <p>¹⁹ Apply at flowering and repeat on 14-21 day interval as needed through harvest.</p> <p>²⁰ Apply at first appearance of leaves and repeat at 7-21 day intervals as needed, in sufficient water to obtain thorough coverage of foliage. Tank mix with spray oil or other registered fungicides for improved control.</p> <p>²¹ Mix 6 to 10 fluid ounces CX-9032 per 100 gallons of water and apply in minimum of 20 gallons per acre from emergence to training, 50 gallons per acre from training to wire, and 100 gallons per acre from wire touch through harvest.</p> <p>²² For treatment of horseradish or strawberry roots immediately before transplanting: immerse bare roots (individually or in bunches) for 10 seconds in a suspension of 1 to 2 pints CX-9032 per gallon of water.</p>	

Foliar application: For control of diseases on foliage, flowers, fruit, or other above-ground parts of plants: Mix CX-9032 in water and apply as a spray at a rate of **0.5 to 6 quarts** of CX-9032 per acre in sufficient water to achieve thorough coverage of the crop canopy with minimal runoff. Begin applications at crop emergence, transplanting, or when conditions are conducive to development of disease. Repeat application every 3 to 10 days, or as needed, for as long as conditions favor disease development. Lower rates (0.5 to 3 quarts per acre) may be applied under light disease pressure, to smaller (e.g. newly-emerged) plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease

development, use higher label rates (3-6 quarts/acre), apply more frequently (every 3-7 days), and mix or rotate CX-9032 with other fungicides for improved performance.

Soil application: For control of soilborne diseases infecting seeds, seedlings, roots, crown, stems, or other plant parts below ground or in contact with soil: Apply CX-9032 at **0.5 to 4.5 pints per acre**. Mix the required amount in sufficient water to apply by one of the following methods:

- Soil drench applied to transplants in flats or pots in the greenhouse or nursery any time prior to transplanting (see additional drench instructions under “Nurseries, greenhouses, shade houses, and ornamental plants” below).
- Soil drench at transplanting, using a “water wheel” injector, spray nozzles/hoses, or other method to drench each root ball and/or planting hole.
- Soil or seedline drench, or banded spray (in-furrow) at planting. See the section on “Banded (in-furrow) application” below for additional instructions.

Follow-up (post-planting) preventative applications can be made every 2-4 weeks by one or more of the following methods, if needed:

- Drip (trickle) or any type of sprinkler irrigation, any time after planting or transplanting. See Chemigation Instructions for additional information.
- Spray directly onto the soil surface and/or lower plant parts. If targeting root disease, follow immediately with sufficient overhead sprinkler irrigation to move CX-9032 to the root zone.
- Injection directly into the rooting zone using shanks or similar equipment.

Lower rates (0.5 to 2 pints of CX-9032 per acre) may be applied under light disease pressure, to smaller plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (2 - 4.5 pints per acre), apply more frequently (every 2 weeks), and mix or rotate CX-9032 with other fungicides for improved performance.

Banded (in-furrow) application: Use the table below (rate CX-9032 per acre) to determine the correct application rate in fluid ounces per 1,000 row feet based on row spacing and desired rate per acre. Mix the required amount of CX-9032 in water and apply as banded spray (4” to 6” wide) or seedline drench centered over the planting furrow. Apply directly over seeds in the furrow just before they are covered with soil. The volume of water required per acre or per 1,000 row feet will depend on the application equipment used. Consult your local cooperative extension service if you need assistance calibrating band spraying equipment.

Rates for banded (in-furrow) application: Find desired application rate of CX-9032 per acre in the left column. Read across that line to the correct row spacing indicated at the top to find the number of fluid ounces per 1,000 row feet that will provide the desired application rate per acre.

CX-9032 rate/acre		Space between rows (inches)														
Pints	fl oz	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
0.5	8	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
0.75	12	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
1.0	16	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2
1.25	20	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.5
1.5	24	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8
1.75	28	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
2.0	32	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2.25	36	0.8	1.0	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	2.3	2.5	2.6	2.8
2.5	40	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9	3.1
2.75	44	1.0	1.2	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2	3.4
3.0	48	1.1	1.3	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.5	3.7
3.25	52	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
3.5	56	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.3
3.75	60	1.4	1.6	1.8	2.1	2.3	2.5	2.8	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6
4.0	64	1.5	1.7	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
4.25	68	1.6	1.8	2.1	2.3	2.6	2.9	3.1	3.4	3.6	3.9	4.2	4.4	4.7	4.9	5.2
4.5	72	1.7	1.9	2.2	2.5	2.8	3.0	3.3	3.6	3.9	4.1	4.4	4.7	5.0	5.2	5.5

Nurseries, greenhouses, shadehouses, and ornamental plants

Spray application: Mix 0.5 to 6 quarts of CX-9032 per 100 gallons of water and apply as a foliar spray of sufficient volume to wet the entire plant with minimal runoff. Begin preventative applications at plant emergence and repeat every 3-28 days as needed (every 3-7 days if disease pressure is high or environmental conditions are highly favorable to disease outbreak, 10-28 days under low pressure or less conducive conditions).

Drench application: Mix 0.5 to 4.5 pints of CX-9032 per 100 gallons of water and apply as a drench or coarse spray to soil or other growing media in pots, flats, plugs, trays, or planting beds, for control or suppression of soilborne diseases of seedlings, cuttings, bedding plants, and transplants (including vegetables and other transplanted food crops). Make first application at or immediately before seeding, sticking, germination, or transplanting. Repeat applications every 14-28 days as needed. Transplants can be treated immediately before transplanting into field soils to protect against damping-off and other diseases that reduce plant establishment.

Cutting or root dip: Dip basal end of cuttings or bare roots (individually or in bunches) in a suspension of 1 to 2 pints of CX-9032 per gallon of water. Immerse for 5-10 seconds immediately before planting.

Chemigation: Mix 0.5 to 4.5 pints of CX-9032 per 100 gallons of water and apply via drip, handheld, or sprinkler irrigation systems. Refer to "Chemigation Instructions" for more details.

CROPS/USE SITES	DISEASES/PATHOGENS
Indoor, outdoor, and shade- or other cover-grown ornamental trees and shrubs, flowering plants, foliage plants, tropical plants, potted plants, potted or cut flowers, bedding plants, forestry seedlings, conifer production for reforestation, fruit trees, vegetables and other crops grown in greenhouses or nurseries.	Powdery mildews caused by <i>Erysiphe</i> , <i>Podosphaera</i> , <i>Sphaerotheca</i> , <i>Oidium</i> , and <i>Golovinomyces</i> spp. Anthracnose (<i>Colletotrichum</i> spp.) Bacterial leaf spots caused by <i>Erwinia</i> , <i>Pseudomonas</i> , and <i>Xanthomonas</i> spp. Damping-off disease (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> spp.) Late blight, blackeye, and root rots caused by <i>Phytophthora</i> spp. Gray mold and blight caused by <i>Botrytis cinerea</i> Black root rot (<i>Aspergillus</i> spp.) Black spot of roses (<i>Diplocarpon rosae</i>) Downy mildew (<i>Peronospora</i> spp.) Leaf spots caused by <i>Alternaria</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Entomosporium</i> , <i>Helminthosporium</i> , and <i>Myrothecium</i> spp.) Rust (<i>Puccinia</i> spp.) Scab (<i>Venturia</i> spp.) Root rot, bottom rot, or stem rot caused by <i>Rhizoctonia solani</i> Sclerotinia blight Fusarium wilts

Turfgrass application

For control of foliar diseases, apply CX-9032 at **1 to 4 fluid ounces per 1,000 square feet** as a ground-directed spray in sufficient water to provide thorough coverage. To control root and crown diseases in or on the soil, immediately follow the spray with sufficient overhead sprinkler irrigation to move the product into the root zone.

USE SITES/CROPS	DISEASES/PATHOGENS
Turf, sod, lawns, golf course (fairways, roughs, greens, tees), grass seed production Including but not limited to: Bluegrass, Bentgrass, Bermudagrass (common & hybrid), Dichondra, Fescue, Orchardgrass, <i>Poa annua</i> , St. Augustine grass, Ryegrass, <i>Zoysia</i> , mixtures, and other grasses or ornamental turf	Anthracnose (<i>Colletotrichum graminicola</i>) Brown patch (<i>Rhizoctonia solani</i>) Dollar spot (<i>Lanzia</i> and <i>Moellerodiscus</i> spp., formerly <i>Sclerotinia homeocarpa</i>) Powdery mildew (<i>Erysiphe graminis</i>) Rust (<i>Puccinia</i> spp.) Gray leaf spot (<i>Pyricularia grisea</i>) "Damping off" or seedling blights caused by <i>Pythium</i>

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep unprotected persons out of treated areas until sprays have dried.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of onsite or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

CHEMIGATION INSTRUCTIONS

General information:

Apply this product only through drip (trickle) irrigation (including micro-irrigation through spaghetti tubes or individual tubes) or sprinkler irrigation (including impact or microsprinklers, microjet, overhead boom, water gun, solid set, lateral move, end tow, side-roll, center pivot, or hand move, including mist-type systems); or with hand-held calibrated irrigation equipment (such as a hand-held wand with injector). Do not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and injector system and flush with clean water before use. Failure to provide a clean tank, free of scale or residues may reduce effectiveness of this product.

Drip (trickle) and micro-irrigation chemigation

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.

Sprinkler chemigation:

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

WARRANTY

Certis USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purpose referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the disease problem, condition of the crop, incompatibility with other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage, or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

MASTER LABEL
SUBLABEL B: Residential Use

OMRI placeholder

CX-9032

Aqueous Suspension Biofungicide/Bactericide for control of plant diseases in home gardens: vegetables, ornamental and fruit trees, shrubs, lawns, flowers, bedding plants, and potted ornamental plants

FOR ORGANIC GARDENING

Active Ingredient:

Bacillus amyloliquefaciens strain D747* 98.85 %

Other Ingredients 1.15 %

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS:

Lot No.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS (AND DOMESTIC ANIMALS): CAUTION:

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor. Hot Line No.: 1-800-255-3924 for additional information

ENVIRONMENTAL HAZARDS:

To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Mixing instructions:

CX-9032 must be mixed with water and applied as a spray to fruit and foliage, or as a drench to plant roots. See below for specific mix rate information.

Application rates and methods:

Spray application for control of powdery mildews, leaf spots, anthracnose, gray mold, and other diseases affecting leaves, flowers, fruit, and other above-ground plant parts of home garden plants: Mix 1 teaspoon of CX-9032 per gallon of water and apply directly to plants using a hand pump sprayer or other suitable spray equipment. Spray just enough to wet all leaves and fruit with minimal run-off or dripping. Total coverage depends on the size of plants to be sprayed and the type of sprayer used. Repeat as needed to maintain disease control, typically every 7-10 days. If disease is prevalent or environmental conditions such as high humidity favor disease outbreak, increase the mixing rate to 1 tablespoon per gallon and shorten the interval between sprays to every 3-7 days.

Drench application for control of diseases affecting plant roots, tubers, or other parts of plants in contact with soil in the home garden: Mix 1 teaspoon of CX-9032 per gallon of water and apply to the soil by one of the following methods:

1. For potted plants (indoors or outdoors), apply in sufficient water to wet the entire root mass using a watering can or tank-fed watering wand. Do not water plants again until 24 hours after application. Alternatively, use a hand-pump or other sprayer to spray the mixture on the soil surface in each pot, then immediately apply sufficient water to move the product into the roots.

2. Drench the roots of transplants with approx. 4 fluid ounces of the mixture immediately before transplanting into pots or garden soil. Allow to soak into the root ball before transplanting.
3. For outdoor-grown plants, use a watering can or sprayer to drench the soil in the planting furrow or transplant hole immediately before planting or transplanting. The amount of water required will depend on the size of the hole or length of furrow.
4. Alternatively, apply in the first watering after planting or transplanting, either by mixing directly into the water at the rate indicated above, or by spraying onto the soil surface at the base of each plant and immediately watering in with a watering can, hose, sprinkler, or other watering device.

CX-9032 can be applied up to and including the day of harvest.

For application to lawns and other grass areas: Mix 1 teaspoon of CX-9032 per gallon of water and apply as a fine spray to the surface of the lawn or grass area. Total amount of mix required will depend on the type of sprayer used and area to be covered, but typically 2 to 5 gallons of spray mix may be required per 1,000 square feet of lawn. CX-9032 can be "watered in" for control of soilborne root and crown diseases by thorough watering immediately after application either with sprinklers or by spraying just before or during light rain.

STORAGE AND DISPOSAL

PESTICIDE STORAGE:

Keep in original container. Store away from direct sunlight, feed, or foodstuffs. Keep container tightly sealed when not in use.

PESTICIDE DISPOSAL AND CONTAINER HANDLING

Non-refillable container. Do not reuse or refill container.

If empty:

Place in trash or offer for recycling, if available.

If partly filled:

Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY

Certis USA L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the insect problem, condition of the crop, incompatibility with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

MASTER LABEL
SUBLABEL A: Agricultural Use

place holder for OMRI Seal

CX-9032

(alternate brand names: **Double Tap 55, Amylo-X AS, Double Nickel LC**)

Aqueous Suspension Biofungicide/Bactericide

FOR ORGANIC PRODUCTION

Active Ingredient:

Bacillus amyloliquefaciens strain D747* 98.85 %

Other Ingredients 1.15%

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS: 2.5 Gallons

Lot No.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product label with you when calling a poison control center or doctor.

Hot Line No.: 1-800-255-3924 for additional information

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco and using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow manufacturer's instructions for cleaning and maintaining PPE. If no instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides, the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticides get inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For Terrestrial Uses: Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

CX-9032 can be applied alone or in combination and/or rotation with chemical fungicides as a tool for integrated disease management in agricultural crops, ornamental and nursery plants, and turfgrass. CX-9032 offers a valuable tool for management of resistance to chemical fungicides through its multiple and unique modes of action.

CX-9032 can be applied up to and including the day of harvest.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is: coveralls, waterproof gloves, shoes plus socks.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

MIXING AND HANDLING INSTRUCTIONS

Mix the required amount of CX-9032 in water with sufficient agitation to maintain a uniform suspension in the spray or mixing tank. Tank should be cleaned prior to use. Do not use highly alkaline or highly acidic water to mix sprays. Use a buffering agent if necessary to maintain neutrality (pH 6 to 8) of water in the tank. Maintain agitation during application. Apply immediately after mixing; do not allow spray mix to stand overnight.

CX-9032 can be mixed and used with other agricultural chemicals for which such mixing is permitted by the product labels, in accordance with the most restrictive of those label limitations and precautions. If such a mixture is planned, a compatibility "jar test" should first be conducted by mixing the correct proportions of CX-9032 and these products in a small volume of water.

APPLICATION METHODS

Ground: CX-9032 can be applied in most commonly-used ground application equipment, such as (but not limited to): tractor-mounted boom, airblast, high clearance, hose-end, backpack, and other pressurized sprayers; hose-end or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method.

APPLICATION METHODS (cont.)

Aerial: CX-9032 can be applied by fixed or rotary winged aircraft in a minimum of 3 gallons of water per acre. Standard precautions should be taken to minimize spray drift.

Chemigation: CX-9032 can be applied through drip (trickle) and sprinkler type irrigation equipment. Refer to the section entitled "Chemigation Instructions" for detailed instructions.

Agricultural crops

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Vegetables and melons:	
Brassica vegetables such as broccoli, cabbage, cauliflower, Brussels sprouts, kohlrabi, and other cole crops.	Pin rot complex (<i>Alternaria/Xanthomonas</i>)* Leaf spots (<i>Alternaria</i> spp., <i>Xanthomonas</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe polygoni</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Bulb vegetables such as onions, garlic, shallots, and others.	<i>Botrytis</i> spp. (neck rot, leaf blight) Purple blotch (<i>Alternaria</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Rust (<i>Puccinia porii</i>)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Cucurbits such as cucumbers, squash (all types), cantaloupes, muskmelons, watermelons, and other melons.	Powdery mildew (<i>Erysiphe</i> and <i>Sphaerotheca</i> spp.) Downy mildew (<i>Pseudoperonospora</i> spp.) Gummy stem blight (<i>Didymella bryoniae</i> and <i>Phoma cucurbitacearum</i>) See instructions below for "Soil application" against the following diseases: Vine decline (<i>Monosporascus cannonballus</i>) Charcoal rot (<i>Macrophomina phaseoli</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Fruiting vegetables such as tomatoes, peppers, eggplant, tomatillo, okra, and others.	Bacterial spot (<i>Xanthomonas</i> spp.)* ¹ Bacterial speck (<i>Pseudomonas syringae</i> pv. <i>tomato</i>)* ¹ Gray mold (<i>Botrytis cinerea</i>) Powdery mildew* (<i>Leveillula</i> , <i>Oidiopsis</i> , <i>Erysiphe</i> , and <i>Sphaerotheca</i> spp.) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Southern blight (<i>Sclerotium rolfsii</i>)*
Leafy vegetables such as head and leaf lettuce, celery, spinach, radicchio, arugula, watercress, and others (including leafy <i>Brassica</i> vegetables such as mustard and collard greens, kale, bok choy, and related crops).	Downy mildew (<i>Bremia lactucae</i> , <i>Peronospora</i> spp.)* Powdery mildew (<i>Golovinomyces</i> (<i>Erysiphe</i>) <i>cichoracearum</i>)* Bacterial blights Head and leaf drop (<i>Sclerotinia</i> spp.)* ² Pink rot (<i>Sclerotinia sclerotiorum</i>)* ² Leaf spots (<i>Cercospora</i> spp.) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Bottom rot (<i>Rhizoctonia solani</i>)

Legume vegetables succulent and dried beans and peas such as green, snap, shell, and Lima beans, garbanzo beans, chickpeas, soybeans, dry beans, peas, split peas, lentils, and other legumes.	White mold (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Microsphaera diffusa</i>) Rusts*, including <i>Uromyces appendiculatus</i> , <i>Puccinia</i> spp., and Asian soybean rust (<i>Phayospora pachyrhizi</i>) “Damping off,” seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for “Soil application”).
Root, tuber, and corm vegetables such as potato, sweet potato, carrot, cassava, beets, ginger, radish, horseradish ²² , ginseng, turnip, and other root, tuber and corm crops.	Black root/crown rot (<i>Alternaria</i> spp.) Bacterial leaf blight (<i>Xanthomonas campestris</i>) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Gray mold (<i>Botrytis</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Black leg /bacterial soft rot (<i>Erwinia carotovora</i>) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for “Soil application” against the following diseases: Black scurf (<i>Rhizoctonia solani</i>) Cavity spot (<i>Pythium</i> spp.) “Damping off,” seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Other vegetables such as sweet corn, popcorn, asparagus, peanut, and watercress	<i>Botrytis</i> spp. Rusts (<i>Puccinia</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> and <i>Cercosporidium</i> spp.)* “Damping off,” seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for “Soil application”).
Tree fruits and nuts	
Citrus such as orange, lemon, lime, grapefruit, tangerine (mandarin), tangelo, pummelo, and other citrus	<i>Alternaria</i> leaf spot (<i>Alternaria alternata</i>) Postbloom fruit drop (<i>Colletotrichum acutatum</i>)* Greasy spot (<i>Mycosphaerella citri</i>)* ³ Citrus canker (<i>Xanthomonas campestris</i> pv. <i>citri</i>) ¹ Scab (<i>Elsinoe fawcetti</i>)* ⁴ Melanose (<i>Diaporthe citri</i>)*
Pome fruits such as apple, pear, crabapple, quince, and others	Powdery mildew (<i>Podosphaera leucotricha</i>) ⁵ Scab (<i>Venturia</i> spp.)* Flayspeck (<i>Zygophiala jamaicensis</i>) ⁶ Sooty blotch disease complex ⁶ Brooks spot (<i>Mycosphaerella pomi</i>) ⁶ Bot rot/white rot (<i>Botryosphaeria dothidea</i>) ⁶ Bitter rot (<i>Colletotrichum</i> spp.) ⁶ Cedar apple rust (<i>Gymnosporangium juniperi-virginianae</i>) ⁶ Fire blight (<i>Erwinia amylovora</i>)* ⁷
Stone fruits such as apricot, cherry, nectarine, peach, plum, prune, pluot, and others	Powdery mildew (<i>Sphaerotheca</i> and <i>Podosphaera</i> spp.)* ⁸ Bacterial canker (<i>Pseudomonas</i> spp.) Brown rot blossom blight (<i>Monilinia laxa</i>) ⁹ Brown rot (<i>Monilinia fructicola</i>)* ¹⁰ Gray mold (<i>Botrytis cinerea</i>) ¹⁰ Peach leaf curl (<i>Taphrina deformans</i>) Bacterial leaf spot (<i>Xanthomonas arbuticola</i> pv. <i>pruni</i>) ¹ Rusty spot (<i>Podosphaera leucotricha</i>) ¹
Tree nuts such as almond, pistachio, pecan, walnut, filbert, hazelnut, chestnut, macadamia, and other tree nuts.	Walnut blight (<i>Xanthomonas campestris</i>) ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>)* Bacterial canker (<i>Pseudomonas syringae</i>) Shot hole (<i>Wilsonomyces carpophilus</i>)* Brown rot (<i>Monilinia</i> spp.)* Pecan scab (<i>Cladosporium caryigenum</i>)* ¹

Pomegranates	Leaf and fruit spots (<i>Cercospora</i> , <i>Gloeosporium</i> and <i>Pestalotia</i> spp.) ¹ Fruit rots (<i>Alternaria</i> , <i>Botrytis</i> , and other spp.) ¹⁰ Powdery mildew (<i>Sphaerotheca pannosa</i>)
Other fruits	
Strawberry	Powdery mildew (<i>Sphaerotheca macularis</i> , <i>Erysiphe</i> spp.)* ¹² Gray mold (<i>Botrytis cinerea</i>)* ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>) Angular leaf spot (<i>Xanthomonas fragariae</i>) ¹ For the following diseases, see instructions below for "Soil application" (and also root dip instructions ²²): "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. Charcoal rot (<i>Macrophomina phaseolina</i>)
Berries , including blueberry, blackberry, raspberry, loganberry, huckleberry, gooseberry, elderberry, cranberry (non-flooded fields), current, and other berries	Mummy berry (<i>Monilinia vaccinii-corymbosi</i>)* Botrytis blight (<i>Botrytis cinerea</i>) Bacterial canker (<i>Pseudomonas</i> spp.) ¹³ Anthracnose fruit rot (<i>Colletotrichum acutatum</i>) ¹⁰
Grapes including wine grapes, table grapes, and raisins	Powdery mildew (<i>Erysiphe</i> (formerly <i>Uncinula</i>) <i>necator</i>) ¹⁴ Gray mold (<i>Botrytis cinerea</i>) ¹⁵ Sour rot complex ¹⁵ Downy mildew (<i>Plasmopara viticola</i>)* Phomopsis (<i>Phomopsis viticola</i>) ¹⁶ Eutypa (<i>Eutypa lata</i>) ¹⁷
Tropical fruits such as avocado ¹⁸ , mango ¹⁸ , papaya ¹⁹ , pineapple ¹⁹ , banana, plantain, and others.	Anthracnose (<i>Colletotrichum</i> spp.) Scab (<i>Sphaceloma perseeae</i>) Bacterial canker (<i>Xanthomonas campestris</i>) Sigatoka (<i>Mycosphaerella fijiensis</i>) ²⁰
Other Crops	
Herbs and spices such as basil, thyme, coriander, dill, cilantro, parsley, mint, and others.	Powdery mildews (<i>Oidium</i> spp. and others) Downy mildews (<i>Peronospora</i> spp. and others)* Damping off diseases (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Alternaria</i> , and <i>Fusarium</i> spp.) Leaf spots (<i>Alternaria</i> , <i>Septoria</i> , <i>Colletotrichum</i> , and <i>Cercospora</i> spp.)* Bacterial diseases (<i>Erwinia</i> , <i>Xanthomonas</i> , and <i>Pseudomonas</i> spp.) Rusts (<i>Puccinia</i> spp. and others) "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Coffee	Coffee berry disease (<i>Colletotrichum coffeanum</i>) ¹ Coffee rust (<i>Hemileia vastatrix</i>) ¹ Anthracnose (<i>Colletotrichum</i> spp.) <i>Botrytis</i> flower blight <i>Cercospora</i> leaf spot and berry blotch "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tobacco	Angular leaf spot (<i>Pseudomonas</i> spp.) Anthracnose (<i>Colletotrichum</i> and <i>Glomerella</i> spp.) Blue mold or downy mildew (<i>Peronospora</i> spp.)* Brown spot (<i>Alternaria</i>) Barn spot/ frog-eye leaf spot (<i>Cercospora nicotianae</i>) ¹⁰ Collar rot (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Erysiphe cichoracearum</i>) Target spot (<i>Rhizoctonia solani</i>) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Olpidium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.

	Charcoal rot (<i>Macrophomina phaseolina</i>) Black root rot (<i>Thielaviopsis basicola</i>) Black shank (<i>Phytophthora</i> spp.)* Southern blight/southern stem rot (<i>Sclerotium rolfsii</i>)*
Mint	Rust (<i>Puccinia</i> spp.)
Hops	Powdery mildew (<i>Sphaerotheca macularis</i>) ²¹

Footnotes:

*Suppression only; for improved control mix or rotate with chemical fungicide approved for such use.

¹ Tank mix or rotate with copper-based fungicides at label rates for improved control.

² Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist.

³ For greasy spot suppression, apply at first new foliar flush and repeat with each new flush. Tank mix with spray oil or copper based fungicide at labeled rates.

⁴ For suppression of citrus scab, start applications at first new foliage flush and repeat at petal fall and when fruit are ½ inch in diameter.

⁵ Make first application at or before tight cluster if conditions favor disease development. Repeat at 7-10 day intervals through the second cover spray or longer on susceptible varieties or if environmental conditions favor rapid disease development.

⁶ Begin applications before bloom when environmental conditions favor disease development, repeating at 7 to 14 day intervals or as needed. Control may be enhanced by addition of a surfactant to improve spray coverage. Use only surfactants known to be safe for use on the crop and for which such use is allowed.

⁷ Rotate with antibiotics registered for fire blight control for improved performance. Begin applications at 1-5% open blossoms and repeat every 3-7 days as necessary until petal fall, when intervals can be increased to 7 days. CX-9032 can also be used in summer "cover spray" applications to control the shoot blight phase of fire blight and summer diseases. Can be mixed with copper fungicides to improve control.

⁸ Make first application at popcorn stage and repeat every 7 days.

⁹ Start applying at early bloom stage and repeat every 7 days through petal fall.

¹⁰ Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections.

¹¹ Begin applications at or before pistillate bloom, repeating every 7-10 days. Apply before rainfall if possible, and tank mix or rotate with a copper-based bactericide registered for such use for improved control.

¹² Start applications at or just before flowering and repeat every 7-10 days as needed through harvest.

¹³ Apply before fall rains and again during dormancy before spring growth.

¹⁴ Start applications when new shoots are ½ to 1½ inches long. Repeat at 3-5 inches, 8-10 inches, and then at 7-10 day intervals until disease conditions no longer exist.

¹⁵ Apply at bloom, before bunch closure, at veraison, and before harvest.

¹⁶ Apply when shoots are ½ to 1 inch long and again when 6-8 inches long.

¹⁷ Mix 2 fluid ounces CX-9032 per gallon of water and apply to pruning wounds.

¹⁸ Apply at budbreak and repeat on 14-21 day interval as needed through harvest.

¹⁹ Apply at flowering and repeat on 14-21 day interval as needed through harvest.

²⁰ Apply at first appearance of leaves and repeat at 7-21 day intervals as needed, in sufficient water to obtain thorough coverage of foliage. Tank mix with spray oil or other registered fungicides for improved control.

²¹ Mix 6 to 10 fluid ounces CX-9032 per 100 gallons of water and apply in minimum of 20 gallons per acre from emergence to training, 50 gallons per acre from training to wire, and 100 gallons per acre from wire touch through harvest.

²² For treatment of horseradish or strawberry roots immediately before transplanting: immerse bare roots (individually or in bunches) for 10 seconds in a suspension of 1 to 2 pints CX-9032 per gallon of water.

Foliar application: For control of diseases on foliage, flowers, fruit, or other above-ground parts of plants: Mix CX-9032 in water and apply as a spray at a rate of **0.5 to 6 quarts** of CX-9032 per acre in sufficient water to achieve thorough coverage of the crop canopy with minimal runoff. Begin applications at crop emergence, transplanting, or when conditions are conducive to development of disease. Repeat application every 3 to 10 days, or as needed, for as long as conditions favor disease development. Lower rates (0.5 to 3 quarts per acre) may be applied under light disease pressure, to smaller (e.g. newly-emerged) plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease

development, use higher label rates (3-6 quarts/acre), apply more frequently (every 3-7 days), and mix or rotate CX-9032 with other fungicides for improved performance.

Soil application: For control of soilborne diseases infecting seeds, seedlings, roots, crown, stems, or other plant parts below ground or in contact with soil: Apply CX-9032 at **0.5 to 4.5 pints per acre**. Mix the required amount in sufficient water to apply by one of the following methods:

- Soil drench applied to transplants in flats or pots in the greenhouse or nursery any time prior to transplanting (see additional drench instructions under “Nurseries, greenhouses, shade houses, and ornamental plants” below).
- Soil drench at transplanting, using a “water wheel” injector, spray nozzles/hoses, or other method to drench each root ball and/or planting hole.
- Soil or seedline drench, or banded spray (in-furrow) at planting. See the section on “Banded (in-furrow) application” below for additional instructions.

Follow-up (post-planting) preventative applications can be made every 2-4 weeks by one or more of the following methods, if needed:

- Drip (trickle) or any type of sprinkler irrigation, any time after planting or transplanting. See Chemigation Instructions for additional information.
- Spray directly onto the soil surface and/or lower plant parts. If targeting root disease, follow immediately with sufficient overhead sprinkler irrigation to move CX-9032 to the root zone.
- Injection directly into the rooting zone using shanks or similar equipment.

Lower rates (0.5 to 2 pints of CX-9032 per acre) may be applied under light disease pressure, to smaller plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (2 - 4.5 pints per acre), apply more frequently (every 2 weeks), and mix or rotate CX-9032 with other fungicides for improved performance.

Banded (in-furrow) application: Use the table below (rate CX-9032 per acre) to determine the correct application rate in fluid ounces per 1,000 row feet based on row spacing and desired rate per acre. Mix the required amount of CX-9032 in water and apply as banded spray (4” to 6” wide) or seedline drench centered over the planting furrow. Apply directly over seeds in the furrow just before they are covered with soil. The volume of water required per acre or per 1,000 row feet will depend on the application equipment used. Consult your local cooperative extension service if you need assistance calibrating band spraying equipment.

Rates for banded (in-furrow) application: Find desired application rate of CX-9032 per acre in the left column. Read across that line to the correct row spacing indicated at the top to find the number of fluid ounces per 1,000 row feet that will provide the desired application rate per acre.

CX-9032 rate/acre		Space between rows (inches)														
Pints	fl oz	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
0.5	8	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
0.75	12	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
1.0	16	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2
1.25	20	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.5
1.5	24	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8
1.75	28	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
2.0	32	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2.25	36	0.8	1.0	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	2.3	2.5	2.6	2.8
2.5	40	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9	3.1
2.75	44	1.0	1.2	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2	3.4
3.0	48	1.1	1.3	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.5	3.7
3.25	52	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
3.5	56	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.3
3.75	60	1.4	1.6	1.8	2.1	2.3	2.5	2.8	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6
4.0	64	1.5	1.7	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
4.25	68	1.6	1.8	2.1	2.3	2.6	2.9	3.1	3.4	3.6	3.9	4.2	4.4	4.7	4.9	5.2
4.5	72	1.7	1.9	2.2	2.5	2.8	3.0	3.3	3.6	3.9	4.1	4.4	4.7	5.0	5.2	5.5

Nurseries, greenhouses, shadehouses, and ornamental plants

Spray application: Mix **0.5 to 6 quarts of CX-9032 per 100 gallons of water** and apply as a foliar spray of sufficient volume to wet the entire plant with minimal runoff. Begin preventative applications at plant emergence and repeat every 3-28 days as needed (every 3-7 days if disease pressure is high or environmental conditions are highly favorable to disease outbreak, 10-28 days under low pressure or less conducive conditions).

Drench application: Mix **0.5 to 4.5 pints of CX-9032 per 100 gallons of water** and apply as a drench or coarse spray to soil or other growing media in pots, flats, plugs, trays, or planting beds, for control or suppression of soilborne diseases of seedlings, cuttings, bedding plants, and transplants (including vegetables and other transplanted food crops). Make first application at or immediately before seeding, sticking, germination, or transplanting. Repeat applications every 14-28 days as needed. Transplants can be treated immediately before transplanting into field soils to protect against damping-off and other diseases that reduce plant establishment.

Cutting or root dip: Dip basal end of cuttings or bare roots (individually or in bunches) in a suspension of **1 to 2 pints of CX-9032 per gallon of water**. Immerse for 5-10 seconds immediately before planting.

Chemigation: Mix **0.5 to 4.5 pints of CX-9032 per 100 gallons of water** and apply via drip, handheld, or sprinkler irrigation systems. Refer to "Chemigation Instructions" for more details.

CROPS/USE SITES	DISEASES/PATHOGENS
Indoor, outdoor, and shade- or other cover-grown ornamental trees and shrubs, flowering plants, foliage plants, tropical plants, potted plants, potted or cut flowers, bedding plants, forestry seedlings, conifer production for reforestation, fruit trees, vegetables and other crops grown in greenhouses or nurseries.	<p>Powdery mildews caused by <i>Erysiphe</i>, <i>Podosphaera</i>, <i>Sphaerotheca</i>, <i>Oidium</i>, and <i>Golovinomyces</i> spp.</p> <p>Anthracnose (<i>Colletotrichum</i> spp.)</p> <p>Bacterial leaf spots caused by <i>Erwinia</i>, <i>Pseudomonas</i>, and <i>Xanthomonas</i> spp.</p> <p>Damping-off disease (<i>Rhizoctonia</i>, <i>Pythium</i>, <i>Fusarium</i> spp.)</p> <p>Late blight, blackeye, and root rots caused by <i>Phytophthora</i> spp.</p> <p>Gray mold and blight caused by <i>Botrytis cinerea</i></p> <p>Black root rot (<i>Aspergillus</i> spp.)</p> <p>Black spot of roses (<i>Diplocarpon rosae</i>)</p> <p>Downy mildew (<i>Peronospora</i> spp.)</p> <p>Leaf spots caused by <i>Alternaria</i>, <i>Septoria</i>, <i>Cercospora</i>, <i>Entomosporium</i>, <i>Helminthosporium</i>, and <i>Myrothecium</i> spp.)</p> <p>Rust (<i>Puccinia</i> spp.)</p> <p>Scab (<i>Venturia</i> spp.)</p> <p>Root rot, bottom rot, or stem rot caused by <i>Rhizoctonia solani</i></p> <p><i>Sclerotinia</i> blight</p> <p><i>Fusarium</i> wilts</p>

Turfgrass application

For control of foliar diseases, apply CX-9032 at **1 to 4 fluid ounces per 1,000 square feet** as a ground-directed spray in sufficient water to provide thorough coverage. To control root and crown diseases in or on the soil, immediately follow the spray with sufficient overhead sprinkler irrigation to move the product into the root zone.

USE SITES/CROPS	DISEASES/PATHOGENS
<p>Turf, sod, lawns, golf course (fairways, roughs, greens, tees), grass seed production</p> <p>Including but not limited to:</p> <p>Bluegrass, Bentgrass, Bermudagrass (common & hybrid), Dichondra, Fescue, Orchardgrass, <i>Poa annua</i>, St. Augustine grass, Ryegrass, <i>Zoysia</i>, mixtures, and other grasses or ornamental turf</p>	<p>Anthracnose (<i>Colletotrichum graminicola</i>)</p> <p>Brown patch (<i>Rhizoctonia solani</i>)</p> <p>Dollar spot (<i>Lanzia</i> and <i>Moellerodiscus</i> spp., formerly <i>Sclerotinia homeocarpa</i>)</p> <p>Powdery mildew (<i>Erysiphe graminis</i>)</p> <p>Rust (<i>Puccinia</i> spp.)</p> <p>Gray leaf spot (<i>Pyricularia grisea</i>)</p> <p>"Damping off" or seedling blights caused by <i>Pythium</i></p>

Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep unprotected persons out of treated areas until sprays have dried.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of onsite or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

CHEMIGATION INSTRUCTIONS

General information:

Apply this product only through drip (trickle) irrigation (including micro-irrigation through spaghetti tubes or individual tubes) or sprinkler irrigation (including impact or microsprinklers, microjet, overhead boom, water gun, solid set, lateral move, end tow, side-roll, center pivot, or hand move, including mist-type systems); or with hand-held calibrated irrigation equipment (such as a hand-held wand with injector). Do not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and injector system and flush with clean water before use. Failure to provide a clean tank, free of scale or residues may reduce effectiveness of this product.

Drip (trickle) and micro-irrigation chemigation

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.

Sprinkler chemigation:

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

WARRANTY

Certis USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purpose referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the disease problem, condition of the crop, incompatibility with other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage, or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

MASTER LABEL
SUBLABEL B: Residential Use

OMRI placeholder

CX-9032

Aqueous Suspension Biofungicide/Bactericide for control of plant diseases in home gardens: vegetables, ornamental and fruit trees, shrubs, lawns, flowers, bedding plants, and potted ornamental plants

FOR ORGANIC GARDENING

Active Ingredient:

Bacillus amyloliquefaciens strain D747* 98.85 %

Other Ingredients 1.15 %

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-107

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS:

Lot No.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS (AND DOMESTIC ANIMALS): CAUTION:

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor. Hot Line No.: 1-800-255-3924 for additional information

ENVIRONMENTAL HAZARDS:

To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Mixing instructions:

CX-9032 must be mixed with water and applied as a spray to fruit and foliage, or as a drench to plant roots. See below for specific mix rate information.

Application rates and methods:

Spray application for control of powdery mildews, leaf spots, anthracnose, gray mold, and other diseases affecting leaves, flowers, fruit, and other above-ground plant parts of home garden plants: Mix 1 teaspoon of CX-9032 per gallon of water and apply directly to plants using a hand pump sprayer or other suitable spray equipment. Spray just enough to wet all leaves and fruit with minimal run-off or dripping. Total coverage depends on the size of plants to be sprayed and the type of sprayer used. Repeat as needed to maintain disease control, typically every 7-10 days. If disease is prevalent or environmental conditions such as high humidity favor disease outbreak, increase the mixing rate to 1 tablespoon per gallon and shorten the interval between sprays to every 3-7 days.

Drench application for control of diseases affecting plant roots, tubers, or other parts of plants in contact with soil in the home garden: Mix 1 teaspoon of CX-9032 per gallon of water and apply to the soil by one of the following methods:

1. For potted plants (indoors or outdoors), apply in sufficient water to wet the entire root mass using a watering can or tank-fed watering wand. Do not water plants again until 24 hours after application. Alternatively, use a hand-pump or other sprayer to spray the mixture on the soil surface in each pot, then immediately apply sufficient water to move the product into the roots.

2. Drench the roots of transplants with approx. 4 fluid ounces of the mixture immediately before transplanting into pots or garden soil. Allow to soak into the root ball before transplanting.
3. For outdoor-grown plants, use a watering can or sprayer to drench the soil in the planting furrow or transplant hole immediately before planting or transplanting. The amount of water required will depend on the size of the hole or length of furrow.
4. Alternatively, apply in the first watering after planting or transplanting, either by mixing directly into the water at the rate indicated above, or by spraying onto the soil surface at the base of each plant and immediately watering in with a watering can, hose, sprinkler, or other watering device.

CX-9032 can be applied up to and including the day of harvest.

For application to lawns and other grass areas: Mix 1 teaspoon of CX-9032 per gallon of water and apply as a fine spray to the surface of the lawn or grass area. Total amount of mix required will depend on the type of sprayer used and area to be covered, but typically 2 to 5 gallons of spray mix may be required per 1,000 square feet of lawn. CX-9032 can be "watered in" for control of soilborne root and crown diseases by thorough watering immediately after application either with sprinklers or by spraying just before or during light rain.

STORAGE AND DISPOSAL

PESTICIDE STORAGE:

Keep in original container. Store away from direct sunlight, feed, or foodstuffs. Keep container tightly sealed when not in use.

PESTICIDE DISPOSAL AND CONTAINER HANDLING

Non-refillable container. Do not reuse or refill container.

If empty:

Place in trash or offer for recycling, if available.

If partly filled:

Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY

Certis USA L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the insect problem, condition of the crop, incompatibility with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

Material Sent for Data Extraction

Reg. # 70651-107

Description: New AI, New Product

☐ Material(s) Sent to Data Extraction Contractors:

☒ New Stamped Label Dated ^{accepted}
12-16-11

☐ Notification Dated _____

☒ New CSF(s) Dated 10-18-11

☐ Other: _____

☒ Decision #: 437757

☐ Other Action/Comments: _____

File this coversheet and attached materials in the jacket. It must be well organized and clipped together, NOT STAPLED. Then give the jacket with the coversheet and materials to staff in the Information Services Center (ISC) (Room S-4900). If a jacket is full or only available as an image, please file materials in a new jacket and bring it down to the (ISC). For further information please call 703-605-0716.

Reviewer: Susanne Cervelli

Phone: 304-8077 Division: BPPD

Date: 3-14-12



U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Biopesticides and Pollution Prevention Division (7511P)
1200 Pennsylvania Avenue NW
Washington, DC 20460

NOTICE OF PESTICIDE REGISTRATION

☒ Registration

☐ Reregistration

(under FIFRA, as amended)

EPA Reg.
Number:
70051-107

Date of Issuance:
DEC 16 2011

Unconditional

Term of
Issuance:

Name of Pesticide Product:

CX-9032

Name and Address of Registrant (include ZIP Code):

Certis U.S.A., L.L.C.
9145 Guilford Road, Suite 175
Columbia, MD 21046

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Biopesticides and Pollution Prevention Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his or her motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This registration does not eliminate the need for continual reassessment of the pesticide. If EPA determines at any time, that additional data are required to maintain in effect an existing registration, the Agency will require submission of such data under section 3(c)(2)(B) of FIFRA.

This product is unconditionally registered in accordance with FIFRA section 3(c)(5) and is subject to the following terms and conditions:

1. By December 15, 2012, the registrant must submit, the results of a one-year storage stability and corrosion characteristics study to support Storage Stability (OCSPG Guideline 830.6317) and Corrosion Characteristics (OCSPG Guideline 830.6320) data requirements.
2. Revise the EPA Registration number on the label to read, "EPA Reg. No. 70051-107."
3. Submit two (2) copies of the revised final printed labeling before you release the product for shipment

A stamped copy of the label is enclosed for your records.

Signature of Approving Official:

W. Michael McDavit, Associate Director
Biopesticides and Pollution Prevention Division (7511P)

Date:

DEC 16 2011



U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Biopesticides and Pollution Prevention Division (7511P)
1200 Pennsylvania Avenue NW
Washington, DC 20460

NOTICE OF PESTICIDE REGISTRATION

☒ Registration

☐ Reregistration

(under FIFRA, as amended)

EPA Reg.
Number:
70051-107

Date of Issuance:

Term of
Issuance:

**Unconditional
DEC 16 2011**

Name of Pesticide Product:

CX-9032

Name and Address of Registrant (include ZIP Code):

**Certis U.S.A., L.L.C.
9145 Guilford Road, Suite 175
Columbia, MD 21046**

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Biopesticides and Pollution Prevention Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

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3. Submit two (2) copies of the revised final printed labeling before you release the product for shipment

A stamped copy of the label is enclosed for your records.

Signature of Approving Official:

W. Michael McDavit

W. Michael McDavit, Associate Director
Biopesticides and Pollution Prevention Division (7511P)

Date:

DEC 16 2011



Re: *Confidential: B. amyloliquefaciens D747 BRAD - please indicate if you concur with comments - preferably by 10/21 and Endocrine disruption question

Joel Gagliardi to: Susanne Cerrelli

10/18/2011 01:37 PM

This message is encrypted and digitally signed.

From: Joel Gagliardi/DC/USEPA/US
To: Susanne Cerrelli/DC/USEPA/US@EPA

Susanne,

I am fairly sure that this is not confidential since it is a public documents.

As far as endocrine effects, I do not know of any cases where a microbe, which primarily affect animals by an infection process, could also affect the endocrine system through the infection process. I think if an infection were to occur there would be general effects not endocrine specific - in this case B. amyloliquefaciens D747 was shown to not be infective.

The other issue is unintentional ingredients, or metabolites. Sometimes foodborne illness for instance is due to toxin production, or the bad outcome of an infection is due to toxin production and not just the infection. There is a very remote possibility that a microbial metabolite could have endocrine effects, though since most hormones are cholesterol derivatives and microbes do not use cholesterol for their cell walls like eukaryotes, I know of no instances where this occurs. I wrote up in the DER a bit about metabolites including enzymes and antibiotic production though we have no evidence of either for D747.

"Bergey's Manual mentions that *Bacillus amyloliquefaciens* are sources of industrial α -amylase and protease enzymes. The Manual of Clinical Microbiology (9th edition) mentions that dried food such as spices, milk powder and grains often contain large amounts of *Bacillus* spores."

Size has little to do with the issue.

Good work on the updated CSFs and label.

Joel

Joel V. Gagliardi, Ph.D.
U.S. Environmental Protection Agency, Mailcode 7511-P
OCSPP, OPP, BPPD, Microbial Pesticides Branch
1200 Pennsylvania Avenue, NW
Washington, DC 20460

703-308-0116 - phone / 703-305-0118 or 703-308-7026 - fax
<http://www.epa.gov/pesticides/biopesticides>

Susanne Cerrelli From: Susanne Cerrelli/DC/USEPA/US To: Joel...

10/18/2011 11:25:32 AM

From: Susanne Cerrelli/DC/USEPA/US
To: Joel Gagliardi/DC/USEPA/US@EPA
Date: 10/18/2011 11:25 AM
Subject: *Confidential: B. amyloliquefaciens D747 BRAD - please indicate if you concur with comments - preferably by 10/21 and Endocrine disruption question

Joel-

Before I send this to DRT or Keith I wanted to check if you can concur with comments on the science content .

I also need to check with you about a paragraph for the endocrine disrupter section.

Certis needs to make changes to CSF to be in compliance for product chemistry, On this round there is typo and math error on CSF, but I wrote BRAD as if CSF corrected since time is limited .
So I realize if you concur you need to concur with that condition that the CSF and label are corrected.

Please let me know if any other corrections needed to Executive summary, Product chemistry/characterization FQPA, human health assessment , and tables in Appendices.

I will need update Bibliography later, as some data were submitted that did not have MRIDs.

If you need anything , please let me know.

[attachment "D747 BRAD started6.docx" deleted by Joel Gagliardi/DC/USEPA/US]

Thanks!!

Susanne Cerrelli

Regulatory Action Leader
Microbial Pesticides Branch
Biopesticides Pollution Prevention Division (7511P)

703-308-8077(w)

ACCEPTED

DEC 16 2011

MASTER LABEL

Under the Federal Insecticide, Fungicide,
and Rodenticide Act, as amended, for
the pesticide registered under
EPA Reg. No. 70051-107

SUBLABEL A: Agricultural Use

place holder for OMRI Seal

CX-9032

(alternate brand names: Double Tap 55, Amylo-X AS)

Aqueous Suspension Biofungicide/Bactericide

FOR ORGANIC PRODUCTION

Active Ingredient:

Bacillus amyloliquefaciens strain D747*98.85 %

Other Ingredients1.15%

Total100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS:

Lot No.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product label with you when calling a poison control center or doctor.

Hot Line No.: 1-800-255-3924 for additional information

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco and using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow manufacturer's instructions for cleaning and maintaining PPE. If no instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides, the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticides get inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For Terrestrial Uses: Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

CX-9032 can be applied alone or in combination and/or rotation with chemical fungicides as a tool for integrated disease management in agricultural crops, ornamental and nursery plants, and turfgrass. CX-9032 offers a valuable tool for management of resistance to chemical fungicides through its multiple and unique modes of action.

CX-9032 can be applied up to and including the day of harvest.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is: coveralls, waterproof gloves, shoes plus socks.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep unprotected persons out of treated areas until sprays have dried

MIXING AND HANDLING INSTRUCTIONS

Mix the required amount of CX-9032 in water with sufficient agitation to maintain a uniform suspension in the spray or mixing tank. Tank should be cleaned prior to use. Do not use highly alkaline or highly acidic water to mix sprays. Use a buffering agent if necessary to maintain neutrality (pH 6 to 8) of water in the tank. Maintain agitation during application. Apply immediately after mixing; do not allow spray mix to stand overnight.

CX-9032 can be mixed and used with other agricultural chemicals for which such mixing is permitted by the product labels, in accordance with the most restrictive of those label limitations and precautions. If such a mixture is planned, a compatibility "jar test" should first be conducted by mixing the correct proportions of CX-9032 and these products in a small volume of water.

APPLICATION METHODS

Ground: CX-9032 can be applied in most commonly-used ground application equipment, such as (but not limited to): tractor-mounted boom, airblast, high clearance, hose-end, backpack, and other pressurized sprayers; hose-end or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method.

APPLICATION METHODS (cont.)

Aerial: CX-9032 can be applied by fixed or rotary winged aircraft in a minimum of 3 gallons of water per acre. Standard precautions should be taken to minimize spray drift.

Chemigation: CX-9032 can be applied through drip (trickle) and sprinkler type irrigation equipment. Refer to the section entitled "Chemigation Instructions" for detailed instructions.

Agricultural crops

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Vegetables and melons:	
Brassica vegetables such as broccoli, cabbage, cauliflower, Brussels sprouts, kohlrabi, and other cole crops.	Pin rot complex (<i>Alternaria/Xanthomonas</i>)* Leaf spots (<i>Alternaria</i> spp., <i>Xanthomonas</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe polygoni</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Bulb vegetables such as onions, garlic, shallots, and others.	<i>Botrytis</i> spp. (neck rot, leaf blight) Purple blotch (<i>Alternaria</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Rust (<i>Puccinia porii</i>)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Cucurbits such as cucumbers, squash (all types), cantaloupes, muskmelons, watermelons, and other melons.	Powdery mildew (<i>Erysiphe</i> and <i>Sphaerotheca</i> spp.) Downy mildew (<i>Pseudoperonospora</i> spp.) Gummy stem blight (<i>Didymella bryoniae</i> and <i>Phoma cucurbitacearum</i>) See instructions below for "Soil application" against the following diseases: Vine decline (<i>Monosporascus cannonballus</i>) Charcoal rot (<i>Macrophomina phaseoli</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Fruiting vegetables such as tomatoes, peppers, eggplant, tomatillo, okra, and others.	Bacterial spot (<i>Xanthomonas</i> spp.)* ¹ Bacterial speck (<i>Pseudomonas syringae</i> pv. <i>tomato</i>)* ¹ Gray mold (<i>Botrytis cinerea</i>) Powdery mildew* (<i>Leveillula</i> , <i>Oidiopsis</i> , <i>Erysiphe</i> , and <i>Sphaerotheca</i> spp.) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Southern blight (<i>Sclerotium rolfsii</i>)*
Leafy vegetables such as head and leaf lettuce.	Downy mildew (<i>Bremia lactucae</i> , <i>Peronospora</i> spp.)* Powdery mildew (<i>Golovinomyces</i> (<i>Erysiphe</i>) <i>cichoracearum</i>)*

celery, spinach, radicchio, arugula, watercress, and others (including leafy <i>Brassica</i> vegetables such as mustard and collard greens, kale, bok choy, and related crops).	Bacterial blights Head and leaf drop (<i>Sclerotinia</i> spp.) ² Pink rot (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> spp.) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Bottom rot (<i>Rhizoctonia solani</i>)
Legume vegetables succulent and dried beans and peas such as green, snap, shell, and Lima beans, garbanzo beans, chickpeas, soybeans, dry beans, peas, split peas, lentils, and other legumes.	White mold (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Microspheera diffusa</i>) Rusts*, including <i>Uromyces appendiculatus</i> , <i>Puccinia</i> spp., and Asian soybean rust (<i>Phakospora pachyrhizi</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Root, tuber, and corm vegetables such as potato, sweet potato, carrot, cassava, beets, ginger, radish, horseradish ²² , ginseng, turnip, and other root, tuber and corm crops.	Black root/crown rot (<i>Alternaria</i> spp.) Bacterial leaf blight (<i>Xanthomonas campestris</i>) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Gray mold (<i>Botrytis</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Black leg /bacterial soft rot (<i>Erwinia carotovora</i>) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: Black scurf (<i>Rhizoctonia solani</i>) Cavity spot (<i>Pythium</i> spp.) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Other vegetables such as sweet corn, popcorn, asparagus, peanut, and watercress	<i>Botrytis</i> spp. Rusts (<i>Puccinia</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> and <i>Cercosporidium</i> spp.)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tree fruits and nuts	
Citrus such as orange, lemon, lime, grapefruit, tangerine (mandarin), tangelo, pummelo, and other citrus	<i>Alternaria</i> leaf spot (<i>Alternaria alternata</i>) Postbloom fruit drop (<i>Colletotrichum acutatum</i>)* Greasy spot (<i>Mycosphaerella citri</i>)* ³ Citrus canker (<i>Xanthomonas campestris</i> pv. <i>citri</i>) ¹ Scab (<i>Elsinoe fawcettii</i>)* ⁴ Melanose (<i>Diaporthe citri</i>)*
Pome fruits such as apple, pear, crabapple, quince, and others	Powdery mildew (<i>Podosphaera leucotricha</i>) ⁵ Scab (<i>Venturia</i> spp.)* Flayspeck (<i>Zygophiala jamaicensis</i>) ⁶ Sooty blotch disease complex ⁶ Brooks spot (<i>Mycosphaerella pomi</i>) ⁶ Bot rot/white rot (<i>Botryosphaeria dothidea</i>) ⁶ Bitter rot (<i>Colletotrichum</i> spp.) ⁶ Cedar apple rust (<i>Gymnosporangium juniperi-virginianae</i>) ⁶ Fire blight (<i>Erwinia amylovora</i>)* ⁷
Stone fruits such as apricot, cherry, nectarine, peach, plum, prune, pluot, and others	Powdery mildew (<i>Sphaerotheca</i> and <i>Podosphaera</i> spp.)* ⁸ Bacterial canker (<i>Pseudomonas</i> spp.) Brown rot blossom blight (<i>Monilinia laxa</i>) ⁹ Brown rot (<i>Monilinia fructicola</i>)* ¹⁰ Gray mold (<i>Botrytis cinerea</i>) ¹⁰ Peach leaf curl (<i>Taphrina deformans</i>) Bacterial leaf spot (<i>Xanthomonas arbuticola</i> pv. <i>pruni</i>) ¹

	Rusty spot (<i>Podosphaera leucotricha</i>) ¹
Tree nuts such as almond, pistachio, pecan, walnut, filbert, hazelnut, chestnut, macadamia, and other tree nuts.	Walnut blight (<i>Xanthomonas campestris</i>) ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>)* Bacterial canker (<i>Pseudomonas syringae</i>) Shot hole (<i>Wilsonomyces carpophilus</i>)* Brown rot (<i>Monilinia</i> spp.)* Pecan scab (<i>Cladosporium caryigenum</i>)* ¹
Pomegranates	Leaf and fruit spots (<i>Cercospora</i> , <i>Gloeosporium</i> and <i>Pestalotia</i> spp.) ¹ Fruit rots (<i>Alternaria</i> , <i>Botrytis</i> , and other spp.) ¹⁰ Powdery mildew (<i>Sphaerotheca pannosa</i>)
Other fruits	
Strawberry	Powdery mildew (<i>Sphaerotheca macularis</i> , <i>Erysiphe</i> spp.)* ¹² Gray mold (<i>Botrytis cinerea</i>)* ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>) Angular leaf spot (<i>Xanthomonas fragariae</i>) ¹ For the following diseases, see instructions below for "Soil application" (and also root dip instructions ²²): "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. Charcoal rot (<i>Macrophomina phaseolina</i>)
Berries , including blueberry, blackberry, raspberry, loganberry, huckleberry, gooseberry, elderberry, cranberry (non-flooded fields), current, and other berries	Mummy berry (<i>Monilinia vaccinii-corymbosi</i>)* Botrytis blight (<i>Botrytis cinerea</i>) Bacterial canker (<i>Pseudomonas</i> spp.) ¹³ Anthracnose fruit rot (<i>Colletotrichum acutatum</i>) ¹⁰
Grapes including wine grapes, table grapes, and raisins	Powdery mildew (<i>Erysiphe</i> (formerly <i>Uncinula</i>) <i>necator</i>) ¹⁴ Gray mold (<i>Botrytis cinerea</i>) ¹⁵ Sour rot complex ¹⁵ Downy mildew (<i>Plasmopara viticola</i>)* Phomopsis (<i>Phomopsis viticola</i>) ¹⁶ Eutypa (<i>Eutypa lata</i>) ¹⁷
Tropical fruits such as avocado ¹⁸ , mango ¹⁸ , papaya ¹⁹ , pineapple ¹⁹ , banana, plantain, and others.	Anthracnose (<i>Colletotrichum</i> spp.) Scab (<i>Sphaceloma perseae</i>) Bacterial canker (<i>Xanthomonas campestris</i>) Sigatoka (<i>Mycosphaerella fijiensis</i>) ²⁰
Other Crops	
Herbs and spices such as basil, thyme, coriander, dill, cilantro, parsley, mint, and others.	Powdery mildews (<i>Oidium</i> spp. and others) Downy mildews (<i>Peronospora</i> spp. and others)* Damping off diseases (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Alternaria</i> , and <i>Fusarium</i> spp.) Leaf spots (<i>Alternaria</i> , <i>Septoria</i> , <i>Colletotrichum</i> , and <i>Cercospora</i> spp.)* Bacterial diseases (<i>Erwinia</i> , <i>Xanthomonas</i> , and <i>Pseudomonas</i> spp.) Rusts (<i>Puccinia</i> spp. and others) "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Coffee	Coffee berry disease (<i>Colletotrichum coffeanum</i>) ¹ Coffee rust (<i>Hemileia vastatrix</i>) ¹ Anthracnose (<i>Colletotrichum</i> spp.) <i>Botrytis</i> flower blight <i>Cercospora</i> leaf spot and berry blotch "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tobacco	Angular leaf spot (<i>Pseudomonas</i> spp.) Anthracnose (<i>Colletotrichum</i> and <i>Glomerella</i> spp.) Blue mold or downy mildew (<i>Peronospora</i> spp.)* Brown spot (<i>Alternaria</i>)

	Barn spot/ frog-eye leaf spot (<i>Cercospora nicotianae</i>) ¹⁰ Collar rot (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Erysiphe cichoracearum</i>) Target spot (<i>Rhizoctonia solani</i>) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Olpidium</i> , <i>Phytophthora</i> , or <i>Fusicillium</i> * spp. Charcoal rot (<i>Macrophomina phaseolina</i>) Black root rot (<i>Thielaviopsis basicola</i>) Black shank (<i>Phytophthora</i> spp.)* Southern blight/southern stem rot (<i>Sclerotium rolfsii</i>)*
Mint	Rust (<i>Puccinia</i> spp.)
Hops	Powdery mildew (<i>Sphaerotheca macularis</i>) ²¹
Footnotes: *Suppression only; for improved control mix or rotate with chemical fungicide approved for such use. ¹ Tank mix or rotate with copper-based fungicides at label rates for improved control. ² Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist. ³ For greasy spot suppression, apply at first new foliar flush and repeat with each new flush. Tank mix with spray oil or copper based fungicide at labeled rates. ⁴ For suppression of citrus scab, start applications at first new foliage flush and repeat at petal fall and when fruit are 1/2 inch in diameter. ⁵ Make first application at or before tight cluster if conditions favor disease development. Repeat at 7-10 day intervals through the second cover spray or longer on susceptible varieties or if environmental conditions favor rapid disease development. ⁶ Begin applications before bloom when environmental conditions favor disease development, repeating at 7 to 14 day intervals or as needed. Control may be enhanced by addition of a surfactant to improve spray coverage. Use only surfactants known to be safe for use on the crop and for which such use is allowed. ⁷ Rotate with antibiotics registered for fire blight control for improved performance. Begin applications at 1-5% open blossoms and repeat every 3-7 days as necessary until petal fall, when intervals can be increased to 7 days. CX-9032 can also be used in summer "cover spray" applications to control the shoot blight phase of fire blight and summer diseases. Can be mixed with copper fungicides to improve control. ⁸ Make first application at popcorn stage and repeat every 7 days. ⁹ Start applying at early bloom stage and repeat every 7 days through petal fall. ¹⁰ Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections. ¹¹ Begin applications at or before pistillate bloom, repeating every 7-10 days. Apply before rainfall if possible, and tank mix or rotate with a copper-based bactericide registered for such use for improved control. ¹² Start applications at or just before flowering and repeat every 7-10 days as needed through harvest. ¹³ Apply before fall rains and again during dormancy before spring growth. ¹⁴ Start applications when new shoots are 1/2 to 1 1/2 inches long. Repeat at 3-5 inches, 8-10 inches, and then at 7-10 day intervals until disease conditions no longer exist. ¹⁵ Apply at bloom, before bunch closure, at veraison, and before harvest. ¹⁶ Apply when shoots are 1/2 to 1 inch long and again when 6-8 inches long. ¹⁷ Mix 2 fluid ounces CX-9032 per gallon of water and apply to pruning wounds. ¹⁸ Apply at budbreak and repeat on 14-21 day interval as needed through harvest. ¹⁹ Apply at flowering and repeat on 14-21 day interval as needed through harvest. ²⁰ Apply at first appearance of leaves and repeat at 7-21 day intervals as needed, in sufficient water to obtain thorough coverage of foliage. Tank mix with spray oil or other registered fungicides for improved control. ²¹ Mix 6 to 10 fluid ounces CX-9032 per 100 gallons of water and apply in minimum of 20 gallons per acre from emergence to training, 50 gallons per acre from training to wire, and 100 gallons per acre from wire touch through harvest. ²² For treatment of horseradish or strawberry roots immediately before transplanting: immerse bare roots (individually or in bunches) for 10 seconds in a suspension of 1 to 2 pints CX-9032 per gallon of water.	

Foliar application: For control of diseases on foliage, flowers, fruit, or other above-ground parts of plants: Mix CX-9032 in water and apply as a spray at a rate of **0.5 to 6 quarts** of CX-9032 per acre in sufficient water to achieve thorough coverage of the crop canopy with minimal runoff. Begin applications at crop emergence, transplanting, or when conditions are conducive

to development of disease. Repeat application every 3 to 10 days, or as needed, for as long as conditions favor disease development. Lower rates (0.5 to 3 quarts per acre) may be applied under light disease pressure, to smaller (e.g. newly-emerged) plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (3-6 quarts/acre), apply more frequently (every 3-7 days), and mix or rotate CX-9032 with other fungicides for improved performance.

Soil application: For control of soilborne diseases infecting seeds, seedlings, roots, crown, stems, or other plant parts below ground or in contact with soil: Apply CX-9032 at 0.5 to 4.5 pints per acre. Mix the required amount in sufficient water to apply by one of the following methods:

- Soil drench applied to transplants in flats or pots in the greenhouse or nursery any time prior to transplanting (see additional drench instructions under "Nurseries, greenhouses, shade houses, and ornamental plants" below).
- Soil drench at transplanting, using a "water wheel" injector, spray nozzles/hoses, or other method to drench each root ball and/or planting hole.
- Soil or seedline drench, or banded spray (in-furrow) at planting. See the section on "Banded (in-furrow) application" below for additional instructions.

Follow-up (post-planting) preventative applications can be made every 2-4 weeks by one or more of the following methods, if needed:

- Drip (trickle) or any type of sprinkler irrigation, any time after planting or transplanting. See Chemigation Instructions for additional information.
- Spray directly onto the soil surface and/or lower plant parts. If targeting root disease, follow immediately with sufficient overhead sprinkler irrigation to move CX-9032 to the root zone.
- Injection directly into the rooting zone using shanks or similar equipment.

Lower rates (0.5 to 2 pints of CX-9032 per acre) may be applied under light disease pressure, to smaller plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (2 - 4.5 pints per acre), apply more frequently (every 2 weeks), and mix or rotate CX-9032 with other fungicides for improved performance.

Banded (in-furrow) application: Use the table below (rate CX-9032 per acre) to determine the correct application rate in fluid ounces per 1,000 row feet based on row spacing and desired rate per acre. Mix the required amount of CX-9032 in water and apply as banded spray (4" to 6" wide) or seedline drench centered over the planting furrow. Apply directly over seeds in the furrow just before they are covered with soil. The volume of water required per acre or per 1,000 row feet will depend on the application equipment used. Consult your local cooperative extension service if you need assistance calibrating band spraying equipment.

Rates for banded (in-furrow) application: Find desired application rate of CX-9032 per acre in the left column. Read across that line to the correct row spacing indicated at the top to find the number of fluid ounces per 1,000 row feet that will provide the desired application rate per acre.

CX-9032 rate/acre		Space between rows (inches)														
Pints	fl oz	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
0.5	8	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
0.75	12	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
1.0	16	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2
1.25	20	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.5
1.5	24	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8
1.75	28	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
2.0	32	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2.25	36	0.8	1.0	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	2.3	2.5	2.6	2.8
2.5	40	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9	3.1
2.75	44	1.0	1.2	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2	3.4
3.0	48	1.1	1.3	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.5	3.7
3.25	52	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
3.5	56	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.3
3.75	60	1.4	1.6	1.8	2.1	2.3	2.5	2.8	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6
4.0	64	1.5	1.7	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
4.25	68	1.6	1.8	2.1	2.3	2.6	2.9	3.1	3.4	3.6	3.9	4.2	4.4	4.7	4.9	5.2
4.5	72	1.7	1.9	2.2	2.5	2.8	3.0	3.3	3.6	3.9	4.1	4.4	4.7	5.0	5.2	5.5

Nurseries, greenhouses, shadehouses, and ornamental plants

Spray application: Mix **0.5 to 6 quarts of CX-9032 per 100 gallons of water** and apply as a foliar spray of sufficient volume to wet the entire plant with minimal runoff. Begin preventative applications at plant emergence and repeat every 3-28 days as needed (every 3-7 days if disease pressure is high or environmental conditions are highly favorable to disease outbreak, 10-28 days under low pressure or less conducive conditions).

Drench application: Mix **0.5 to 4.5 pints of CX-9032 per 100 gallons of water** and apply as a drench or coarse spray to soil or other growing media in pots, flats, plugs, trays, or planting beds, for control or suppression of soilborne diseases of seedlings, cuttings, bedding plants, and transplants (including vegetables and other transplanted food crops). Make first application at or immediately before seeding, sticking, germination, or transplanting. Repeat applications every 14-28 days as needed. Transplants can be treated immediately before transplanting into field soils to protect against damping-off and other diseases that reduce plant establishment.

Cutting or root dip: Dip basal end of cuttings or bare roots (individually or in bunches) in a suspension of **1 to 2 pints of CX-9032 per gallon of water**. Immerse for 5-10 seconds immediately before planting.

Chemigation: Mix **0.5 to 4.5 pints of CX-9032 per 100 gallons of water** and apply via drip, handheld, or sprinkler irrigation systems. Refer to "Chemigation Instructions" for more details.

CROPS/USE SITES	DISEASES/PATHOGENS
Indoor, outdoor, and shade- or other cover-grown ornamental trees and shrubs, flowering plants, foliage plants, tropical plants, potted plants, potted or cut flowers, bedding plants, forestry seedlings, conifer production for reforestation, fruit trees, vegetables and other crops grown in greenhouses or nurseries.	Powdery mildews caused by <i>Erysiphe</i> , <i>Podosphaera</i> , <i>Sphaerotheca</i> , <i>Oidium</i> , and <i>Gaiovinomyces</i> spp. Anthracnose (<i>Colletotrichum</i> spp.) Bacterial leaf spots caused by <i>Erwinia</i> , <i>Pseudomonas</i> , and <i>Xanthomonas</i> spp. Damping-off disease (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> spp.) Late blight, blackeye, and root rots caused by <i>Phytophthora</i> spp. Gray mold and blight caused by <i>Botrytis cinerea</i> Black root rot (<i>Aspergillus</i> spp.) Black spot of roses (<i>Diplocarpon rosae</i>) Downy mildew (<i>Peronospora</i> spp.) Leaf spots caused by <i>Alternaria</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Entomosporium</i> , <i>Helminthosporium</i> , and <i>Myrothecium</i> spp.) Rust (<i>Puccinia</i> spp.) Scab (<i>Venturia</i> spp.) Root rot, bottom rot, or stem rot caused by <i>Rhizoctonia solani</i> <i>Sclerotinia</i> blight <i>Fusarium</i> wilts

Turfgrass application

For control of foliar diseases, apply CX-9032 at **1 to 4 fluid ounces per 1,000 square feet** as a ground-directed spray in sufficient water to provide thorough coverage. To control root and crown diseases in or on the soil, immediately follow the spray with sufficient overhead sprinkler irrigation to move the product into the root zone.

USE SITES/CROPS	DISEASES/PATHOGENS
Turf, sod, lawns, golf course (fairways, roughs, greens, tees), grass seed production Including but not limited to: Bluegrass, Bentgrass, Bermudagrass (common & hybrid), Dichondra, Fescue, Orchardgrass, <i>Poa annua</i> , St. Augustine grass, Ryegrass, <i>Zoysia</i> , mixtures, and other grasses or ornamental turf	Anthracnose (<i>Colletotrichum graminicola</i>) Brown patch (<i>Rhizoctonia solani</i>) Dollar spot (<i>Lanzia</i> and <i>Moellerodiscus</i> spp., formerly <i>Sclerotinia homeocarpa</i>) Powdery mildew (<i>Erysiphe graminis</i>) Rust (<i>Puccinia</i> spp.) Gray leaf spot (<i>Pyricularia grisea</i>) "Damping off" or seedling blights caused by <i>Pythium</i>

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of onsite or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

CHEMIGATION INSTRUCTIONS

General information:

Apply this product only through drip (trickle) irrigation (including micro-irrigation through spaghetti tubes or individual tubes) or sprinkler irrigation (including impact or microsprinklers, microjet, overhead boom, water gun, solid set, lateral move, end tow, side-roll, center pivot, or hand move, including mist-type systems); or with hand-held calibrated irrigation equipment (such as a hand-held wand with injector). Do not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and injector system and flush with clean water before use. Failure to provide a clean tank, free of scale or residues may reduce effectiveness of this product.

Drip (trickle) and micro-irrigation chemigation

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.

Sprinkler chemigation:

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

WARRANTY

Certis USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purpose referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the disease problem, condition of the crop, incompatibility with other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage, or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

MASTER LABEL
SUBLABEL B: Residential Use

OMRI placeholder

CX-9032

Aqueous Suspension Biofungicide/Bactericide for control of plant diseases in home gardens: vegetables, ornamental and fruit trees, shrubs, lawns, flowers, bedding plants, and potted ornamental plants

FOR ORGANIC GARDENING

Active Ingredient:

Bacillus. amyloliquefaciens strain D747*98.85 %

Other Ingredients 1.15 %

Total.....100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS:

Lot No.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS (AND DOMESTIC ANIMALS): CAUTION:

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor. Hot Line No.: 1-800-255-3924 for additional information

ENVIRONMENTAL HAZARDS:

To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Mixing instructions:

CX-9032 must be mixed with water and applied as a spray to fruit and foliage, or as a drench to plant roots. See below for specific mix rate information.

Application rates and methods:

Spray application for control of powdery mildews, leaf spots, anthracnose, gray mold, and other diseases affecting leaves, flowers, fruit, and other above-ground plant parts of home garden plants: Mix 1 teaspoon of CX-9032 per gallon of water and apply directly to plants using a hand pump sprayer or other suitable spray equipment. Spray just enough to wet all leaves and fruit with minimal run-off or dripping. Total coverage depends on the size of plants to be sprayed and the type of sprayer used. Repeat as needed to maintain disease control, typically every 7-10 days. If disease is prevalent or environmental conditions such as high humidity favor disease outbreak, increase the mixing rate to 1 tablespoon per gallon and shorten the interval between sprays to every 3-7 days.

Drench application for control of diseases affecting plant roots, tubers, or other parts of plants in contact with soil in the home garden: Mix 1 teaspoon of CX-9032 per gallon of water and apply to the soil by one of the following methods:

1. For potted plants (indoors or outdoors), apply in sufficient water to wet the entire root mass using a watering can or tank-fed watering wand. Do not water plants again until 24 hours after application. Alternatively, use a hand-pump or other sprayer to spray the mixture on the soil surface in each pot, then immediately apply sufficient water to move the product into the roots.

2. Drench the roots of transplants with approx. 4 fluid ounces of the mixture immediately before transplanting into pots or garden soil. Allow to soak into the root ball before transplanting.
3. For outdoor-grown plants, use a watering can or sprayer to drench the soil in the planting furrow or transplant hole immediately before planting or transplanting. The amount of water required will depend on the size of the hole or length of furrow.
4. Alternatively, apply in the first watering after planting or transplanting, either by mixing directly into the water at the rate indicated above, or by spraying onto the soil surface at the base of each plant and immediately watering in with a watering can, hose, sprinkler, or other watering device.

CX-9032 can be applied up to and including the day of harvest.

For application to lawns and other grass areas: Mix 1 teaspoon of CX-9032 per gallon of water and apply as a fine spray to the surface of the lawn or grass area. Total amount of mix required will depend on the type of sprayer used and area to be covered, but typically 2 to 5 gallons of spray mix may be required per 1,000 square feet of lawn. CX-9032 can be "watered in" for control of soilborne root and crown diseases by thorough watering immediately after application either with sprinklers or by spraying just before or during light rain.

STORAGE AND DISPOSAL

PESTICIDE STORAGE:

Keep in original container. Store away from direct sunlight, feed, or foodstuffs. Keep container tightly sealed when not in use.

PESTICIDE DISPOSAL AND CONTAINER HANDLING

Non-refillable container. Do not reuse or refill container.

If empty:

Place in trash or offer for recycling, if available.

If partly filled:

Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY

Certis USA L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the insect problem, condition of the crop, incompatibility with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller. To the extent consistent with applicable law, buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

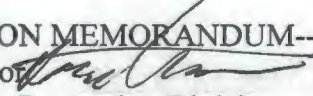


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Consideration of Section 3(c)(5) Unconditional Registrations for *Bacillus amyloliquefaciens* strain D747

FROM: ~~-----~~ DECISION MEMORANDUM ~~-----~~
Keith A. Matthews, Director 
Biopesticides and Pollution Prevention Division

TO: Steven Bradbury, Director
Office of Pesticide Programs

I. ISSUE

Should the Agency, under Section 3(c)(5) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), grant an unconditional registration for the microbial pesticide *Bacillus amyloliquefaciens* strain D747 (EPA File Symbols 70051-RNI, and-RNT) (PC Codes 016482), which are proposed for use to control fungi and bacteria in outdoor agricultural crops, greenhouses, nurseries, shadehouses, ornamentals, and turfgrass. Depending on the use, the end-use product may be applied with tractor mounted boom, airblast, hose-end, backpack and other pressurized sprayers; foggers or mist blowers; water wheel and other drench applicators; soil injection; aerial; and chemigation with drip or sprinkler irrigation and cutting or root dip.

II. APPLICANT INFORMATION

On July 26, 2010, Certis USA, LLC (address: 9145 Guilford Road, Suite 175, Columbia, MD, 21046), submitted applications to register two end-use pesticide products, CX-9032 and CX-9030, under FIFRA section 3(c)(5). EPA announced receipt of these applications to register pesticide products containing a new active ingredient on February 2, 2011 ([76 Federal Register \(FR\) 5805](#)), and opened a 30-day public comment period, pursuant to the provisions of FIFRA section 3(c)(4). No comments were received following this publication.

Concurrent with its registration applications, and under the Federal Food, Drug, and Cosmetic Act (FFDCA) section 408(d), Certis USA, LLC, submitted a petition to establish an exemption from the requirement of a tolerance for *Bacillus subtilis* variant *amyloliquefaciens* strain D747 (Pesticide Petition (PP) 0F7760). In the Federal Register of February 4, 2011 ([76 FR 6465](#)), EPA

announced that Certis USA, LLC proposed to establish an exemption from the requirement of a tolerance for residues of the insecticide, *Bacillus subtilis* variant *amyloliquefaciens* strain D747, in or on all food commodities, and opened a 30-day comment period. No comments were received following this publication. The correct taxonomic designation of the microorganism is *Bacillus amyloliquefaciens* strain D747; therefore, the tolerance exemption, when established, will reflect the correct name of the active ingredient.

The public has had an opportunity to comment on these proposed registrations announced on November 14, 2011 on the EPA websites at <http://www.epa.gov/pesticides/chemical/pesticide-registrations/bacillus-amyloliquefaciens-strain.html> and <http://www.epa.gov/pesticides/regulating/registration-status.html#b>. No comments were received to date during this 30 day comment period.

III. BACKGROUND AND CONCLUSIONS

Health Effects and Exemption from the Requirement of a Tolerance

Bacillus amyloliquefaciens strain D747 was previously identified as *Bacillus subtilis* variant *amyloliquefaciens* strain D747 in the submitted application and the petition submitted to exempt the bacterium from the requirement of a tolerance when used as a microbial pesticide in or on all food commodities. *Bacillus subtilis* and *Bacillus amyloliquefaciens* were considered subtypes or variants of the same species. Now, however, *Bacillus amyloliquefaciens* is taxonomically designated as a separate species.

The Biopesticides and Pollution Prevention Division (BPPD) has reviewed the submitted data and other information regarding the numerous proposed uses of *B. amyloliquefaciens* strain D747. Adequate product analysis, mammalian and other information were submitted to support the registrations of pesticide products containing the microbial active ingredient, *B. amyloliquefaciens* strain D747. All toxicology data requirements for *B. amyloliquefaciens* strain D747 have been satisfied. BPPD has concluded that the database is adequate to support the registration of the two end-use pesticide products, CX-9030 (EPA File Symbol 70051- RNT) and CX-9032 (EPA File Symbol 70051- RNI). Tier II and Tier III studies were not required for *B. amyloliquefaciens* strain D747, based upon the lack of acute toxicity/pathogenicity in the Tier I studies.

The acute oral, injection and pulmonary toxicity/pathogenicity studies show that *Bacillus amyloliquefaciens* strain D747 is not toxic, infective, or pathogenic to mammals at the doses tested. No acute, subchronic, chronic, immune, endocrine, or nondietary exposure issues were identified to indicate that the fungicidal use of these active ingredients would be expected to harm infants, children, and the general U.S. population.

Bacillus species, including *Bacillus amyloliquefaciens*, are commonly found in agricultural settings and occur naturally on fresh produce with no known adverse effects. The Manual of

Clinical Microbiology (9th edition) mentions that dried food, such as spices, milk powder, and grains, often contains large amounts of *Bacillus* spores. *Bacillus amyloliquefaciens* is not known to produce mammalian toxins, and no foodborne illnesses associated with *Bacillus amyloliquefaciens* have been reported.

Bacillus amyloliquefaciens is naturally present in soils (Logan and de Vos 2009); therefore, *Bacillus amyloliquefaciens* may occur in surface water and possibly groundwater. According to the World Health Organization, *Bacillus* species are often detected in drinking water even after going through acceptable water treatment processes, largely because the spores are resistant to these disinfection processes (World Health Organization, 2011). Should this microbial pesticide be present, no adverse effects are expected from exposure to *Bacillus amyloliquefaciens* through drinking water, based on the results of submitted toxicity studies.

The use sites for these *Bacillus amyloliquefaciens* strain D747 products include residential gardens, as well as agricultural sites

Based upon the low oral toxicity demonstrated in the submitted studies, the intended uses of this microbial fungicide do not pose a dietary risk to the U.S. population in general, including infants and children. Therefore, a final rule establishing exemptions from the requirement of a tolerance for *Bacillus amyloliquefaciens* strain D747 in 40 CFR 180, in accordance with Section 408 of the Federal Food, Drug, and Cosmetics Act (FFDCA), have been prepared for your signature. These final rules have been reviewed by the Agency's Office of General Counsel, and their concurrence (e-mail from Benjamin Wakefield dated 12/08/11 to Susanne Cerrelli) is attached.

Health Effects Assessment of Bacillus amyloliquefaciens strain D747

As detailed in the accompanying Biopesticides Registration Action Document (BRAD), Acute oral, pulmonary and intravenous injection toxicity studies performed on rats demonstrate *Bacillus amyloliquefaciens* strain D747 is not toxic, infective, or pathogenic to rats when orally dosed with 1.0×10^8 CFU / animal; or when dosed intratracheally or intravenously with 1.0×10^7 CFU/ animal.

Environmental Assessment

The Agency has performed an ecological risk assessment based on the data, literature citations, and data waiver rationale provided by the registrant for *Bacillus amyloliquefaciens* strain D747. *B. amyloliquefaciens* strain D747 is proposed for control of fungal and bacterial pests in a variety of agricultural, greenhouse, and homeowner food and nonfood uses. *B. amyloliquefaciens* is a soil bacterium that is widely distributed. It has been isolated from internal tissues of healthy plants, and is recognized as a plant growth promoting symbiont (Logan and de Vos 2009).

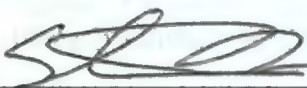
As discussed in detail in the accompanying BRAD, no toxic endpoints have been identified for

non-target mammals, birds, insects, aquatic organisms, or plants. Therefore, no adverse effects to non-target species exposed to *B. amyloliquefaciens* strain D747 from their intended use as a microbial fungicide, when used in accordance with the label directions. The proposed uses of *B. amyloliquefaciens* strain D747 are not expected to pose risk of unreasonable adverse effects to nontarget organisms. A "No Effect" determination is made for direct effects to federally listed threatened and endangered species.

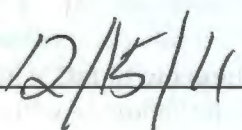
The data, literature citations and other information, including data waivers, submitted by the applicant and reviewed by BPPD support the application to register two end-use pesticide products, CX-9030 (EPA File Symbol 70051-RNT) and CX-9032 (EPA File Symbol 70051-RNI), when applied and/or used as directed on the label and in accordance with good agricultural practices.

IV. OFFICE DIRECTOR CONCURRENCE

Based on the discussion above and the data summarized in the attached BRADs, the Biopesticides and Pollution Prevention Division recommends unconditional registration for the microbial pesticide, *Bacillus amyloliquefaciens* strain D747 as a new active ingredient for use on outdoor and greenhouse agricultural food, ornamental crops, residential gardens, and turf and as a fungicide.

Concurrence:  _____

Non-Concurrence: _____

Date:  _____

CERTIS

Certis USA, L.L.C.
 9145 Guilford Road
 Suite 175
 Columbia, MD 21046
(301) 604-7340
 FAX (301) 604-7015
www.certisusa.com

HAND- DELIVERED

October 12, 2011

Ms. Susanne Cerelli
 Regulatory Action Leader
 Microbial Pesticides Branch
 Biopesticides and Pollution Prevention Division (7504P)
 Office of Pesticide Programs
 US Environmental Protection Agency
 Room S-4900, One Potomac Yard
 2777 South Crystal Drive
 Arlington, VA 22202-4501

Re: Additional Studies/Rationale to Support Registration of *Bacillus amyloliquefaciens* D747
 EPA File Symbol: 70051-RNI and 70051-RNT

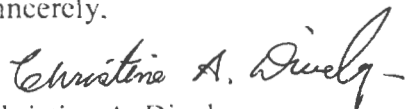
Dear Susanne:

On behalf of Certis U.S.A., L.L.C., I am submitting additional information to support the registration of EPA File Symbol 70051-RNI and 70051-RNT:

- Volume I- Addendum to MRID 48165712
48621501 OPPTS: 885.4050 Avian Oral Toxicity/Pathogenicity- Request for No Further Testing
- Volume II - Addendum to MRID 48165716
48621502 OPPTS: 885.4340 Non-Target Insect Testing -- Request for No Further Testing
- Volume III -- Addendum to MRID 48165717
48621503 OPPTS: 885.4380 Acute Dietary Pathogenicity and Toxicity Study with the Honey Bee (*Apis mellifera*)- Request for No Further Testing

Please do not hesitate to contact me if you have any questions about this submission. I can be reached by telephone at 301-483-3806 or by email at cdively@certisusa.com.

Sincerely,



Christine A. Dively
 Director of Regulatory Affairs
 Certis USA

enclosure

CX 9032

From CX 9030 data

File Symbol: 0051 RNT Date: 9/28/11 Label Review Reviewer: Cervell

[Site/Use]	[Res]	[/Ag]	[/Both]	[/Food]	[/Non-Food]	[/Both]
[Tox Categories:]	[AcOral:]	[AcDerm:]	[AcInhl:]	[EyeIrr:]	[SkinIrr:]	[DermSens:]
Label Requirement	Acceptable	Not Acceptable	N/A	Comments Recommendations	LRM3	
Restricted Use Pesticide	-----	-----	----		Ch 6	
Product Name	✓				Pg 12-3	
Compny Name and Info	✓				Pg 15-1	
Identification Numbers	→	X		Adel-107	Ch 14	
Net Contents	?			21.5 gallons	Ch 17	
Ingredients Statement		X		? valvety mmm ONCSF	Ch 5 CSF needs cont	
Label Claims					Pgs 4-5, 5-7 11-10 & Ch 12	
Alternate Formula				→ CSFs need info	5-12	

Precautionary Statements					
Label Requirement	Acceptable	Not Acceptable	N/A	Comments Recommendations	LRM3
KOROC	✓				3-1 & 9 7-3 & 4
Signal Word	✓			→ some budging "cushion"	Ch 3 Ch 7 Ch 10
General Heading >PRECAUTIONARY STATEMENTS=					Ch 7
First Aid (PRN 20001-1)				ALL-NR	Ch 3 & 7

Hazards to Humans and Domestic Animals					Ch 3, 7-3
PPE (WPS) Engineering Controls	✓				Ch 7, Pg 7-12 Pgs 10-4, 15
User Safety Requirements		✓		adjust	Ch 10
User Safety Recommendations		✓		11	Ch 10
Environmental Hazards					Ch 8
Physical and Chemical Hazards					Pg 3-4 Ch 9

419-5856
214 4255

9032

Direction USE (FIFRA Text, WPS plus Storage and Disposal)

Label Requirement	Acceptable	Not Acceptable	N/A	Comments Recommendations	LRM3
Header >Directions for Use=				have box under "directions for use"	10-16
Violation of Federal Law text		✓		correct the text	10-26, 11-7
WPS Text (PPE)					Ch 10, 7-1 7-11
Non-WPS Text					7-12, Ch 10
Storage and Disposal				how to handle - home use OK	11-16, Ch 13

check #3-2 type of container assumed Ringle jar

2.55 gallon jug - plastic

Directions for Use (General Instructions and Information)

Label Requirement	Acceptable	Not Acceptable	N/A	Comments Recommendations	LRM3
General Instructions and Sub-Header					
Chemigation / Prohibition				somehow correct instructions letter	PRN
REI					Pg 10-20

Label Requirement	Acceptable	Not Acceptable	N/A	Comments Recommendations	LRM3
General Info. (non-site specific info. on uses, pests, mixing, and loading, tank mixing, etc.)					
General Precautions and Restrictions					
Directions for Use					
Directions for Application					
Warranty Information					
Consistency with label instructions					12-6
Not false or misleading					

"The warranty section contains an overly broad statement concerning limitations of liability. As such, this statement may be misleading and may constitute misbranding under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). It is suggested that the existing statement be preceded by the phrase, **to the extent allowable by state law**, or otherwise qualified to make it clear that this warranty is not intended to be a statement of law which implies that the buyer has no legal rights to recover damages from the manufacturer if he/she suffered a loss or injury from the product and concludes that it would be futile to pursue what might in reality be a valid claim."



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Success!

You have created a new docket with the following attributes:

Docket ID: EPA-HQ-OPP-2011-0853

Title: Pesticide Products Registration Applications with a New Active Ingredient: *Bacillus amyloliquefaciens* strain D747)

Docket Type: Nonrulemaking

Docket Phase: Notice

Docket Sequence: 1

Docket Status: Draft

Current Assignee: HQ OPP DMs

Docket Manager: HQ OPP DMs

Regulation Writer: Cerrelli, Susanne (EPA)

What you can do now:

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**DOCKET CREATED EPA-HQ-OPP-2011-0853- Pesticide Products
Registration Applications with a New Active Ingredient Bacillus
amyloliquefaciens strain D747.....** 

Latasha White to: Susanne Cerrelli
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BIOPESTICIDES REGISTRATION ACTION DOCUMENT

Bacillus amyloliquefaciens strain D747

Pesticide Chemical (PC) Code: 016482

**U.S. Environmental Protection Agency
Office of Pesticide Programs
Biopesticides and Pollution Prevention Division**

December 8, 2011 version

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I. EXECUTIVE SUMMARY

Certis USA, LLC, ("Certis" or "applicant") submitted data to support the registration of *Bacillus amyloliquefaciens* strain D747 is the active ingredient in two end-use pesticide products, CX-9030 (EPA File Symbol 70051-107) and CX-9032 (EPA File Symbol 70051-108). The products are intended for use to control fungi and bacteria in outdoor agricultural crops, greenhouses, nurseries, shadehouses, ornamentals, and turfgrass. *B. amyloliquefaciens* strain D747 was initially identified by Certis as "*Bacillus subtilis* variant *amyloliquefaciens* strain D747," since *B. subtilis* and *B. amyloliquefaciens* were originally classified as subtypes or variants of the same species. *B. amyloliquefaciens* is now considered a separate species, and the correct taxonomic designation is used in this Biopesticides Registration Action Document ("BRAD") (Priest et. al., 1987; Logan and de Vos, 2009; and Murray et. al., 2007).

EPA scientists reviewed product analysis, mammalian and nontarget organism toxicity data, and other information submitted by Certis to support the registration of the two aforementioned product registrations. The product analysis data requirements for *B. amyloliquefaciens* strain D747, including product chemistry and composition, analysis of samples, and physical and chemical characteristics, were fulfilled by acceptable studies conducted in accordance with Agency guidelines. Mammalian toxicity data (acute oral, injection, and pulmonary toxicity/pathogenicity) and information from peer-reviewed scientific literature demonstrated that *B. amyloliquefaciens* strain D747 is not toxic, infective or pathogenic in laboratory rats. Acceptable nontarget organism data also demonstrated that *B. amyloliquefaciens* strain D747 is not toxic to estuarine and marine fish and invertebrates, nontarget insects (including honey bees), and nontarget plants.

We have assessed human health and environmental risks of *B. amyloliquefaciens* strain D747, and determined that the pesticide would not cause unreasonable adverse effects to nontarget organisms when used in accordance with the directions on the labels, and in accordance with good agricultural practices. Additional mammalian and nontarget organism toxicity data are not required for the registered uses and application methods.

Bacillus species, including *B. amyloliquefaciens*, are commonly found in soils, including agricultural settings, and are naturally present on fresh produce. The Manual of Clinical Microbiology (9th Edition) states that dried foods, such as spices, milk powder and grains, often contain large amounts of *Bacillus* spores. *B. amyloliquefaciens* is not known to produce any mammalian toxins, and no food-borne disease outbreaks associated with *B. amyloliquefaciens* have been reported. Given that the microorganism occurs naturally in soils, exposure to *B. amyloliquefaciens* from surface and groundwater may occur. No adverse effects have been reported, and none are expected from exposure to *B. amyloliquefaciens* through drinking water.

Despite the low toxicological profile of *B. amyloliquefaciens* strain D747, personal protective equipment (PPE) is required for pesticide handlers that are frequently exposed to the active ingredient for prolonged periods. Handlers will be directed to wear a long-sleeved shirt, long pants, socks, shoes, waterproof gloves, and a dust/mist filtering respirator meeting National Institute for Occupational Safety and Health (NIOSH) standards of at least N-95, R-95, or P-95. EPA may require additional PPE, other than the standard described above, if additional pesticide uses resulting in increased exposures are proposed in the future.

EPA has concluded that, based upon the results of the toxicity tests and lack of adverse incidents,

there is a reasonable certainty that no harm will result to the United States population, including infants and children, from aggregate exposure to residues of *B. amyloliquefaciens* strain D747. No dietary risks (including drinking water) are expected from use of *B. amyloliquefaciens* strain D747 as an active ingredient in pesticide products. The two end-use pesticide products, CX-9030 and CX-9032 meet the standards for registration under Section 3(c)(5) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

On October 1, 2009, EPA announced a new policy to provide a more meaningful opportunity for the public to participate in major registration decisions before they occur. According to this policy, EPA intends to provide a public comment period prior to making a registration decision for, at minimum, the following types of applications: new active ingredients; first food uses; first outdoor uses; first residential uses; or any other registration actions for which EPA believes there may be significant public interest.

Consistent with the policy of making registration actions more transparent, the pesticide products containing *B. amyloliquefaciens* strain D747, a new active ingredient, were subject to a 30-day comment period. . During this comment period, no comments were received on EPA's preliminary decision to register the two end-use pesticide products containing *B. amyloliquefaciens* strain D747, CX-9030 and CX-9032. Therefore, EPA maintained that, based upon the risk assessment and information submitted in support of registration of such pesticide products, it was in the best interest of the public and the environment to issue the end-use pesticide product registrations for *B. amyloliquefaciens* strain D747, CX-9030 and CX-9032. The basis for this preliminary decision can be found in the risk assessment for *B. amyloliquefaciens* strain D747, which is presented in this document.

II. ACTIVE INGREDIENT OVERVIEW

Biological Name:	<i>Bacillus amyloliquefaciens</i> strain D747
Culture Deposit:	Agricultural Research Service Culture Collection (also known as the Northern Regional Research Laboratory (NRRL) Collection) in Peoria, Illinois, under Accession Number NRRL B-50405.
OPP Chemical Code:	016482
Type of Pesticide:	Microbial Pesticide – Insecticide

See [Appendix B](#) for specific information (e.g., use sites, application rates, methods of application, formulation types, and target pests) regarding the registered pesticide products containing this active ingredient.

III. REGULATORY BACKGROUND

A. Applications for Pesticide Product Registration

Certis USA, LLC (address: 9145 Guilford Road, Suite 175, Columbia, MD, 21046), submitted applications to register two end-use pesticide product, CX-9032 and CX-9030, under FIFRA section 3(c)(5) on July 26, 2010. EPA announced receipt of these applications to register pesticide products containing a new active ingredient on February 2, 2011 ([76 Federal Register \(FR\) 5805](#)), and opened a 30-day public comment period, pursuant to the provisions of FIFRA section 3(c)(4). No comments were received following this publication.

B. Food Tolerance Exemption

Concurrent with its registration applications, and under the Federal Food, Drug, and Cosmetic Act (FFDCA) section 408(d), Certis USA, LLC, submitted a petition to establish an exemption from the requirement of a tolerance for *Bacillus subtilis* variant *amyloliquefaciens* strain D747 (Pesticide Petition (PP) 0F7760). In the Federal Register of February 4, 2011 ([76 FR 6465](#)), EPA announced that Certis USA, LLC, proposed to establish an exemption from the requirement of a tolerance for residues of the insecticide, *Bacillus subtilis* variant *amyloliquefaciens* strain D747, in or on all food commodities, and opened a 30-day comment period. No comments were received following this publication. The correct taxonomic designation of the microorganism is *Bacillus amyloliquefaciens* strain D747; therefore, the tolerance exemption, when established, will reflect the correct name of the active ingredient.

IV. RISK ASSESSMENT

In the Federal Register of October 26, 2007, EPA issued a Final Rule establishing changes to the data requirements that support the registration of microbial pesticides. The rule also updated the definition for microbial pesticides ([72 FR 61002](#)), and became effective on December 26, 2007. The data and information evaluated for this BRAD were considered in accordance with these requirements.

The classifications or ratings that are given for each data requirement in this BRAD were assigned by the EPA scientists who reviewed the data, and convey the usefulness of the information for the human health and nontarget risk assessment purposes. "Acceptable" indicates that a study is scientifically sound and is useful for risk assessment. A "supplemental" classification indicates the studies provided some information that can be useful for risk assessment. "Supplemental" ratings are given to studies that are not required for registration, as well as those that are required. In the latter case, the study lacks information that should have been obtained if it was conducted according to the guideline associated with the data requirement. Sometimes the missing information would not add anything necessary to inform a risk assessment, and the study classification remains "supplemental." A classification of "supplemental:upgradable" indicates the study lacks necessary information, but if it is made available by the applicant, the study may be upgraded to "acceptable." An "unacceptable" rating indicates that new data must be submitted.

Toxicity categories are assigned to acute toxicity studies, based upon any signs of toxicity (hazards) observed in the test animals during the course of the study, whether the study was

conducted in accordance with test guidelines or comes from other sources, such as peer-reviewed, scientific literature. The active ingredient or particular product is classified into Toxicity Category I, II, III, or IV, where Toxicity Category I indicates the highest toxicity, and Toxicity Category IV indicates the lowest toxicity (see [40 CFR § 156.62](#)).

A. Product Analysis Assessment ([40 CFR § 158.2120](#))

All product analysis data requirements for *B. amyloliquefaciens* strain D747 have been fulfilled for the current product registrations. Refer to Tables 1, 2, 3, and 4 in [Appendix A](#) for a brief summary of the data requirements, including both generic and product-specific information.

B. Human Health Assessment ([40 CFR § 158.2140](#))

1. Toxicity

All Tier I mammalian toxicity data requirements for *B. amyloliquefaciens* strain D747 have been fulfilled for the current product registrations. Refer to Tables 5, 6 and 7. Based on the lack of acute toxicity/pathogenicity, Tier II and Tier III studies were not required.

For a comprehensive summary of the generic and product-specific toxicity data requirements described below, refer to Tables 5, 6 and 7 in [Appendix A](#).

a. Acute Toxicity/Pathogenicity – Tier I

Acute Oral Toxicity/Pathogenicity (Office of Chemical Safety and Pollution Prevention (OCSPP) Guideline 885.3050; Master Record Identification Number (MRID No. 481657-04):

B. amyloliquefaciens strain D747 was administered once orally to 14 rats of both sexes (5-weeks old) at a single dosage of 10^8 colony-forming units (CFU) per animals. No deaths occurred, and no abnormalities (clinical signs, body weight) were observed, during the study or at necropsy. The test microbe was detected at $10^3 - 10^5$ CFU/g in feces 1 day after administration of the test material, but was not detected on day 14. The examination for internal persistence did not detect the test microbe in any organs or tissues, such as the kidney, brain, liver, lung, spleen, stomach, small intestine (duodenum), large intestine (cecum), mesenteric lymph nodes, or blood, throughout the experimental period. Fecal clearance occurred by day 14, and no viable organisms were recovered from blood or other organs or tissues. The results of this acceptable study demonstrated that *B. amyloliquefaciens* strain D747 was not infective, pathogenic, or toxic to rats when orally dosed with 1.0×10^8 CFU / animal.

Acute Pulmonary Toxicity/Pathogenicity (OCSPP Guideline 885.3150; MRID No. 481657-06):

B. amyloliquefaciens strain D747 was administered once intratracheally to 20 male and female Sprague-Dawley rats (5-week old) at a dosage of 10^7 CFU per animal. No deaths occurred, and no abnormalities (clinical signs, body weight) were observed during the study or at necropsy. The examination for internal persistence showed that the test microbe was detected shortly after administration in the lung, trachea, and nasal cavity. The test microbes were not detected in the nasal cavity on day 7, and almost completely cleared from the trachea by day 60, when the study ended. The presence of the test microbes decreased in the lungs by approximately $10^2 - 10^3$ CFU/g from day 0 to day 60. The test microbes were detected in the bronchial lymph nodes on day 3. Since many test microbes remained in the trachea on day 3, their presence in the bronchial lymph nodes on day 3 was attributed to transfer by macrophages from the respiratory tract to the lymph

nodes. This conclusion was supported by the observation that a particle larger than 1 μm in diameter administered into the trachea and bronchi was phagocytized by a macrophage and carried to a lymph node. The presence of the microbes in the lungs, though decreasing throughout the observation period, was attributed to the continuous transfer of viable test organisms to the bronchial lymph nodes. This result is not unusual for spore-forming bacteria, since bacterial spores are extremely tolerant of adverse conditions, and take a longer time for the immune system to clear than bacteria that do not form spores. Since a pattern of clearance was demonstrated, the remaining viable cells were considered to be spores, which take longer for a healthy immune system to clear. This acceptable study demonstrated that *B. amyloliquefaciens* strain D747 was not toxic or pathogenic to rats when dosed intratracheally at 1.0×10^7 CFU/animal.

Acute Injection Toxicity/Pathogenicity (Intravenous) – Rat (OCSP Guideline 885.3200; MRID No. 481657-05): In an acute intravenous injection toxicity and pathogenicity study, groups of 17 male and female Sprague-Dawley rats (5-weeks old) were injected with *B. amyloliquefaciens* strain D747 at a dosage of 10^7 CFU per animal, and the influence on the animals was investigated. No deaths occurred, and there were no observed abnormalities (clinical signs, body weight) during the study or at necropsy. The examination for internal persistence of the test microbe showed that the test microbes were mainly detected in the kidney, liver, spleen, and blood shortly after administration. The test microbe decreased after that and was not detected in the blood from day 14; clearance from the kidney occurred by day 60. McClintock et al. previously reported that when *B. thuringiensis* and *B. subtilis*, which are both spore-forming bacteria, were administered intravenously to rats, clearance from the liver and spleen is difficult. In this study, the test microbe did not completely disappear from these organs by day 60. No test microbes were detected in the brain, and only a few viable microbes at the limit level were sporadically detected in the small and large intestines, and lymph nodes, but were cleared by day 60. This acceptable study demonstrated that *B. amyloliquefaciens* strain D747 was not toxic, infective, or pathogenic to rats when injected intravenously with 1.0×10^7 CFU/animal.

Hypersensitivity Incidents (OCSP Guideline 885.3400; MRID No. 481655-05): No hypersensitivity incidents in humans have been reported, and none occurred during research, development, or testing of *B. amyloliquefaciens* strain D747. Should hypersensitivity or other adverse incidents in humans occur in the future, Certis must report them to EPA, in accordance with FIFRA section 6(a)(2).

Cell Culture (OCSP Guideline 885.3500): This study was not required because *B. amyloliquefaciens* strain D747 is not a virus (refer to test note #4 of 40 CFR § 158.2140(d)).

***b. Acute Toxicity and Subchronic Toxicity/Pathogenicity – Tier II;
Reproductive Fertility Effects, Carcinogenicity, Immunotoxicity, and
Infectivity/Pathogenicity Analysis – Tier III***

Tier II and Tier III studies were not required for *B. amyloliquefaciens* strain D747 based on the lack of acute toxicity/pathogenicity in the Tier I studies.

c. Endocrine Disruptors

As required under FFDCA section 408(p), EPA has developed the Endocrine Disruptor Screening Program (EDSP) to determine whether certain substances (including pesticide active

and other ingredients) may have an effect in humans or wildlife similar to an effect produced by a “naturally occurring estrogen, or other such endocrine effects as the Administrator may designate.” The EDSP employs a two-tiered approach to making the statutorily required determinations. Tier 1 consists of a battery of 11 screening assays to identify the potential of a chemical substance to interact with the estrogen, androgen, or thyroid (E, A, or T) hormonal systems. Chemicals that go through Tier 1 screening and are found to have the potential to interact with E, A, or T hormonal systems will proceed to the next stage of the EDSP where EPA will determine which, if any, of the Tier 2 tests are necessary based on the available data. Tier 2 testing is designed to identify any adverse endocrine-related effects caused by the substance, and establish a quantitative relationship between the dose and the E, A, or T effect.

Between October 2009 and February 2010, EPA issued test orders/data call-ins for the first group of 67 chemicals, which contains 58 pesticide active ingredients and 9 inert ingredients. This list of chemicals was selected based on the potential for human exposure through pathways such as food and water, residential activity, and certain post-application agricultural scenarios. This list should not be construed as a list of known or likely endocrine disruptors.

B. amyloliquefaciens strain D747 is not among the group of 58 pesticide active ingredients on the initial list to be screened under the EDSP. Under FFDCA section 408(p), EPA must screen all pesticide chemicals. Accordingly, EPA anticipates issuing future EDSP orders/data call-ins for all pesticide active ingredients.

For further information on the status of the EDSP, the policies and procedures, the list of 67 chemicals, the test guidelines and the Tier 1 screening battery, please visit our website:
<http://www.epa.gov/endo/>.

2. Federal Food, Drug, and Cosmetic Act (FFDCA) Considerations

Section 408(c)(2)(A)(i) of FFDCA allows EPA to establish an exemption from the requirement for a tolerance (the legal limit for a pesticide chemical residue in or on a food) only if EPA determines that the exemption is “safe.” Section 408(c)(2)(A)(ii) of FFDCA defines “safe” to mean that “there is a reasonable certainty that no harm will result from aggregate exposure to the pesticide chemical residue, including all anticipated dietary exposures and all other exposures for which there is reliable information.” This includes exposure through drinking water and in residential settings but does not include occupational exposure. Pursuant to section 408(c)(2)(B) of FFDCA, in establishing or maintaining in effect an exemption from the requirement of a tolerance, EPA must take into account the factors set forth in section 408(b)(2)(C) of FFDCA, which require EPA to give special consideration to exposure of infants and children to the pesticide chemical residue in establishing a tolerance and to “ensure that there is a reasonable certainty that no harm will result to infants and children from aggregate exposure to the pesticide chemical residue....” Additionally, section 408(b)(2)(D) of FFDCA requires that EPA consider “available information concerning the cumulative effects of [a particular pesticide's] . . . residues and other substances that have a common mechanism of toxicity.”

EPA performs a number of analyses to determine the risks from aggregate exposure to pesticide residues. First, EPA determines the toxicity of pesticides. Second, EPA examines exposure to the pesticide through food, drinking water, and through other exposures that occur as a result of pesticide use in residential settings.

Consistent with section 408(b)(2)(D) of FFDCA, EPA has reviewed the available scientific data and other relevant information, and considered its validity, completeness, and reliability and the relationship of this information to human risk. EPA has also considered available information concerning the variability of the sensitivities of major identifiable subgroups of consumers, including infants and children. All of the data requirements have been fulfilled, as described previously, and are presented in Table 5 in [Appendix A](#). The following summarizes the results of EPA's dietary risk assessment for *B. amyloliquefaciens* strain D747.

a. Aggregate Exposure

In examining aggregate exposure, section 408 of FFDCA directs EPA to consider available information concerning exposures from the pesticide residue in food and all other non-occupational exposures, including drinking water from ground or surface water, and through pesticide use in residential and other indoor uses.

Food Exposure and Risk Characterization: *Bacillus* species, including *B. amyloliquefaciens*, are commonly found in the soil in agricultural settings, and are present on fresh produce of all kinds with no known adverse effects. The Manual of Clinical Microbiology (9th edition) mentions that dried food such as spices, milk powder and grains often contain large amounts of *B. spores*. *B. amyloliquefaciens* is not known to produce any mammalian toxins, and no foodborne disease outbreaks associated with *B. amyloliquefaciens* have been reported.

Based on the data and other information submitted to satisfy the data requirements for registration of the manufacturing-use and end-use pesticide products containing the active ingredient, *B. amyloliquefaciens* strain D747, no toxicity, infectivity, pathogenicity or other adverse effects from dietary exposure to are expected (see section IV(B)(1)(a), above, and Table 5 in [Appendix A](#)).

Drinking Water Exposure and Risk Characterization: *B. amyloliquefaciens* is naturally present in soils (Logan and de Vos, 2009); therefore, *B. amyloliquefaciens* may occur in surface and possibly groundwater. According to the World Health Organization, *Bacillus* species are often detected in drinking water even after going through acceptable water treatment processes, largely because the spores are resistant to these disinfection processes (World Health Organization, 2011). Should this microbial pesticide be present, no adverse effects are expected from exposure to *B. amyloliquefaciens* through drinking water, based on the data and other information submitted to satisfy the data requirements for registration of the manufacturing-use and end-use pesticide products containing the active ingredient, *B. amyloliquefaciens* strain D747 (see section IV(B)(1)(a), above, and Table 5 in [Appendix A](#)).

Non-occupational, Residential Risk Characterization: The use sites for these products include residential garden sites and agricultural sites. As stated previously, *B. amyloliquefaciens* is naturally present in soil, and based on the data and other information submitted to satisfy the data requirements for registration of the manufacturing-use and end-use pesticide products containing the active ingredient, *B. amyloliquefaciens* strain D747, no toxicity, infectivity, pathogenicity or other adverse effects from non-occupational exposure are expected (see section IV(B)(1)(a), above, and Table 5 in [Appendix A](#)).

b. Cumulative Effects from Substances with a Common Mechanism of Toxicity

Section 408(b)(2)(D)(v) of FFDCA requires that, when considering whether to establish, modify, or revoke a tolerance exemption, EPA consider "... available information concerning the cumulative effects of [a particular pesticide's] ... residues and other substances that have a common mechanism of toxicity."

EPA has found that *B. amyloliquefaciens* strain D747 does not share a common mechanism of toxicity with any other microorganism, pesticidal or toxic substance. EPA concludes that there are no cumulative effects associated with *B. amyloliquefaciens* strain D747 that need to be considered. For information regarding how EPA determines common mechanisms of toxicity and evaluates cumulative effects, see EPA's website at:

<http://www.epa.gov/pesticides/cumulative>.

c. Determination of Safety for the United States (U.S.) Population, Infants and Children

FFDCA section 408(b)(2)(C) provides that EPA shall assess the available information about consumption patterns among infants and children, special susceptibility of infants and children to pesticide chemical residues, and the cumulative effects on infants and children of the residues and other substances with a common mechanism of toxicity. In addition, FFDCA section 408(b)(2)(C) provides that EPA shall apply an additional tenfold (10X) margin of safety for infants and children in the case of threshold effects to account for prenatal and postnatal toxicity and the completeness of the database on toxicity and exposure, unless EPA determines that a different margin of safety will be safe for infants and children. This additional margin of safety is commonly referred to as the Food Quality Protection Act Safety Factor. In applying this provision, EPA either retains the default value of 10X or uses a different additional safety factor when reliable data available to EPA support the choice of a different factor.

EPA concludes that, based upon the results of the toxicity data and other information considered and described in this document, there is a reasonable certainty that no harm will result to the U.S. population, including infants and children, from aggregate exposure to the residues of *B. amyloliquefaciens* strain D747. Such exposure includes all anticipated dietary and other exposures for which there is reliable information. With no threshold effects of concern, an additional margin of safety is not required for infants and children.

3. Occupational Exposure and Risk Characterization

Occupational exposure to *B. amyloliquefaciens* strain D747 is not expected to undue risks to pesticide handlers (mixer/loader/applicators), but EPA requires appropriate personal protective equipment and precautionary statements to mitigate any potential risks (e.g., respiratory allergenicity) to pesticide handlers from prolonged or repeated exposures. Handlers applying *B. amyloliquefaciens* strain D747 end-use products in agricultural settings must wear a long-sleeved shirt, long pants, socks, shoes, waterproof gloves, and a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95.

4. Human Health Risk Characterization

EPA considered human exposure to *B. amyloliquefaciens* strain D747 in light of the registration standards of FIFRA and the relevant FFDCA safety factors for allowable pesticide residues in

food and animal feed commodities. EPA has determined that no unreasonable adverse effects to the U.S. population in general, and to infants and children in particular, will result when the pesticide products containing *B. amyloliquefaciens* strain D747 as the active ingredient are used in accordance with EPA-approved labeling.

C. Environmental Assessment (40 CFR § 158.2150)

The primary habitat of *Bacillus* species is soil, although they have also been isolated from a wide variety of other habitats. *B. amyloliquefaciens* has a wide-spread distribution, owed in part to its ability to form endospores that are resistant to greater variation in environmental conditions than the vegetative cells, should transfer to other climates occur. *B. amyloliquefaciens* has been isolated from internal tissues of healthy plants, and is known to promote plant growth. It is not recognized as a pathogen among *Bacillus* species (Logan and de Vos, 2009).

The data, literature citations, and data waiver rationale submitted by the applicant to support the pesticide products containing *B. amyloliquefaciens* strain D747 fulfilled the Tier I nontarget organism data requirements, and were sufficient for risk assessment purposes. Further testing of nontarget organisms at higher tier levels (i.e., Tiers II, III, and IV) is not required for the EPA-approved use sites. EPA performed an environmental risk assessment, and has determined that the use of *B. amyloliquefaciens* strain D747 is not expected to cause unreasonable adverse effects to nontarget organisms.

For a comprehensive summary of the generic data requirements described in sections IV(C)(1) of this BRAD, refer to Table 8 in Appendix A.

1. Ecological Exposure and Risk Characterization

a. Terrestrial Animals and Plants

The end-use products include a water-dispersible granular formulation and an aqueous suspension, for application to agricultural crops, nurseries, ornamental plants, turfgrass, greenhouses, and shadehouses. Applications can be made to both foliar surfaces and soil, so exposure to nontarget organisms is possible. The maximum application rates from the labels of registered products were used in the assessment of nontarget risk.

Data on the naturally occurring levels of *B. amyloliquefaciens* are not available. Many factors influence the environmental fate of microbial pesticides, and resulting population levels in the environment cannot be predicted. EPA expects that *B. amyloliquefaciens* strain D747 may survive after application if conditions are favorable, but the strain would not significantly add to the overall levels of *B. amyloliquefaciens* already present in the environment.

Birds (OCSPP Guideline 885.4050) and Mammals (OCSPP Guideline 885.4150):

A supplemental study showed that the acute oral LD₅₀ for *B. amyloliquefaciens* strain D747 is > 4.5 x 10¹¹ spores/kg BW or > 8 x 10⁹ spores/bird in Northern bobwhite (*Colinus virginianus*; MRID 48165712). Additionally, *B. amyloliquefaciens* is intentionally included in some domestic avian food diets as a nutritional additive (e.g., European Food Safety Authority, 2010; Wizna et al., 2009), and it is not known to be pathogenic to animals (Logan and de Vos, 2009). An extensive literature search in several databases returned no reports of toxicity or pathogenicity of *B. amyloliquefaciens* in birds. Based on these lines of evidence, *B.*

amyloliquefaciens strain D747 is not expected to pose risk of adverse effects in birds.

A study with laboratory rats (MRID 48165704) also showed that *B. amyloliquefaciens* strain D747 is not toxic, infective, or pathogenic at the maximum hazard dose of 1.0×10^8 CFU/animal. Therefore, adverse effects to wild mammals are also not expected as a result of the applications of *B. amyloliquefaciens* strain D747 in accordance with label instructions.

Nontarget Insects (OCSPP Guideline 885.4340) and Honey Bees (OCSPP Guideline 885.4380): Studies with *Orius stricollis*, *Crysoperla carnea*, and *Phytoseiulus persimilis* were submitted for the nontarget insect data requirement (MRID 48165716). While no effects of *B. amyloliquefaciens* strain D747 were observed in these studies, they were not acceptable for use in the ecological risk assessment. Two honey bee studies were also submitted that showed no adverse effects of *B. amyloliquefaciens* D747 after 48 hours (MRID 48165717) and 17 days (no MRID currently assigned). These studies were rated Supplemental because they were not of sufficient duration (30 days); however, except in rare cases, bacteria that are pathogenic to insects typically produce toxins that kill the insect within a few days (Tanada and Kaya, 1993). Adverse effects resulting from exposure to *B. amyloliquefaciens* strain D747, therefore, would likely have been evident in the bee studies, especially after 17 days. Scientific rationale was submitted to show that adverse effects are not expected to nontarget insects (MRIDs 48621502 and 48621503). Entomopathogenic *B. species* (e.g., *B. thuringiensis*, *B. sphaericus*) have been extensively studied, and their pathobiology is well-known. *B. amyloliquefaciens* is not among the *B. species* recognized as frank pathogens to insects or other animals (Logan and de Vos, 2009). There are some accounts in the literature of effects of *B. subtilis* on insects; however, none of these were associated with *B. amyloliquefaciens* or *B. subtilis* var. *amyloliquefaciens*. Therefore, based on the studies and other information provided, *B. amyloliquefaciens* strain D747 is not expected to pose risk to honey bees and other nontarget insects as a result when applied in accordance with label instructions..

Nontarget Plants (OCSPP Guideline 885.4300):

Studies with plants exposed to *B. amyloliquefaciens* strain D747 were unacceptable, based on several deficiencies (MRID 48165715). *B. amyloliquefaciens* is not taxonomically related to any known plant pathogens. As discussed previously, however, the microorganism has been isolated from tissues of healthy plants and is known as a plant growth-promoting rhizobacterium. It is, therefore, not expected to pose risk to nontarget plants as a result of applications made in accordance with label instructions.

b. Aquatic Animals and Plants

B. amyloliquefaciens strain D747 is not intended to be applied directly to water, but some of the applied product may reach aquatic habitats through runoff or spray drift. Spray drift at application is the primary mechanism by which the pesticide is expected to reach water. A spray drift analysis was included in the aquatic risk assessment to determine exposure, and further detail is provided in the environmental risk assessment for *B. amyloliquefaciens* strain D747.

Freshwater Fish (OCSPP 885.4200) Guideline and Invertebrates (OCSPP Guideline 885.4240):

In a 30-day study with rainbow trout (*Oncorhynchus mykiss*), the LC_{50} for *B. amyloliquefaciens* strain D747 was 8.1×10^{10} CFU/L, and the NOEC based on sub-lethal effects was 1.44×10^{10} CFU/L. If the maximum broadcast application rate (4 fluid ounces/1000 ft² or 2.55×10^6 CFU/cm²) is applied directly to a 1-ha body of water 15 cm deep (the EPA Standard Wetland),

the resulting concentration would be 1.7×10^8 CFU/L. This would be the maximum possible aquatic concentration at this application rate, but this direct application to water is not on the EP labels. The NOEC and LC₅₀ are approximately 85X and 476X higher than this concentration, respectively. Exposure in freshwater environments will be well below the concentrations that would produce adverse effects, and the applications of *B. amyloliquefaciens* strain D747 as presented on EPA- approved labels are not expected to pose risks to freshwater fish.

A study with *Daphnia magna* provided an EC₅₀ based on mortality/immobility of 3.7×10^{10} CFU/L, and a NOEC for sub-lethal effects of 2.84×10^8 CFU/L. Based on the spray drift analysis, the NOEC would be approximately 20X the expected environmental concentration (EEC), and the EC₅₀ would be 218X the EEC; therefore, the applications of *B. amyloliquefaciens* strain D747 as presented on EPA- approved labels are not expected to result in adverse effects to freshwater invertebrates.

Marine/Estuarine Fish (OCSPP 885. 4280) and Invertebrates (OCSPP 885.4240):

Concentrations reaching marine or estuarine areas are expected to be less than those calculated above for freshwater animals, due to further dilution in deeper water. *B. amyloliquefaciens* strain D747 is not expected to reach marine or estuarine environments in significant concentrations, and risk to animals in these environments is not anticipated.

Aquatic Plants (OCSPP Guideline 885.4300):

B. amyloliquefaciens strain D747 is not related to known plant pathogens; therefore, adverse effects to aquatic plants are not anticipated.

2. Environmental Fate Data

The information provided to support uses and application methods that are presented on EPA- approved labels was sufficient to satisfy the Tier I nontarget organism data requirements and for nontarget organism risk assessment for *B. amyloliquefaciens* strain D747; further testing at higher tier levels (i.e., Tiers II, III, and IV) is not required.

3. Threatened and Endangered Species Assessment

Since EPA has determined that no effects are anticipated for any nontarget species exposed to *B. amyloliquefaciens* strain D747 as a result of applications made in accordance with EPA- approved labels, effects to federally listed threatened and endangered species and their designated critical habitats are also not expected. Therefore, a "No Effect" determination is made for direct and indirect effects to listed species and their designated critical habitats resulting from the approved uses of *B. amyloliquefaciens* strain D747.

V. ENVIRONMENTAL JUSTICE

EPA seeks to achieve environmental justice—the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income—with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal environmental programs and policies. Meaningful involvement means that (1) potentially

affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health; (2) the public's contribution can influence the regulatory agency's decision; (3) the concerns of all participants involved will be considered in the decision-making process; and (4) the decision-makers seek out and facilitate the involvement of those potentially affected. EPA has this goal for all communities and persons across the United States.

EPA sought information on any groups or segments of the population who, as a result their location, cultural practices, or other factors, may have atypical, unusually high exposure to *B. amyloliquefaciens* strain D747, compared to the general population. No public comments were received on this particular matter.

For additional information regarding environmental justice issues, please visit EPA's web site at <http://www.epa.gov/compliance/environmentaljustice/index.html>.

VI. RISK MANAGEMENT DECISION

Section 3(c)(5) of FIFRA permits for the registration of a pesticide provided that all the following determinations are made:

- (1) Its composition is such as to warrant the proposed claims for it;
- (2) Its labeling and other material required to be submitted comply with the requirements of FIFRA;
- (3) It will perform its intended function without unreasonable adverse effects on the environment; AND
- (4) When used in accordance with widespread and commonly recognized practice, it will not generally cause unreasonable adverse effects on the environment.

To satisfy criterion 1, the *B. amyloliquefaciens* strain D747 pesticide products have well-known properties. EPA has no knowledge that would contradict the claims made for these products, the CX-9030 and CX-9032 EP labels, and we have concluded that such products are not expected to cause unreasonable adverse effects on the environment when used according to the label instructions. Criterion 2 is satisfied by the current product labels, as well as the data and information presented in this document. It is believed that the *B. amyloliquefaciens* strain D747 pesticide products will not cause any unreasonable adverse effects on the environment, and CX-9030 and CX-9032 (end-use pesticide product), in particular, are likely to provide protection against fungal and bacterial pests as claimed, satisfying criterion 3. Criterion 4 is satisfied in that the *B. amyloliquefaciens* strain D747 pesticide products are not expected to cause unreasonable adverse effects when used according to label instructions. Therefore the end-use products, CX-9030 and CX-9032, containing *B. amyloliquefaciens* strain D747 as a new active ingredient, are eligible for registration under FIFRA section 3(c)(5) for the labeled uses. Should uses that are more extensive be proposed in the future (e.g., aquatic uses), EPA will likely require that additional data be submitted.

VII. ACTIONS REQUIRED BY THE REGISTRANT

A. Final Printed Labeling

Before releasing pesticide products containing *B. amyloliquefaciens* strain D747 for shipment, the registrant is required to provide appropriate final printed labeling to EPA prior to shipment of product.

B. Terms of Registration

As a term of the registration CX-9032 EP, the registrant must submit the following data within one year of this product's registration:

- (1) Storage Stability (OCSPP Guideline 830.6317) and Corrosion Characteristics (OCSPP Guideline 830.6320): The results of a one-year storage stability and corrosion characteristics study.

C. Reporting of Adverse Effects and Hypersensitivity Incidents

Notwithstanding the information stated previously, it should be clearly understood that certain specific data are required to be reported to EPA as a requirement for maintaining the federal registration for a pesticide product. A brief summary of these types of data are described below.

Reports of all incidents of adverse effects to the environment must be submitted to EPA under the provisions stated in FIFRA section 6(a)(2). Additionally, all incidents of hypersensitivity (including both suspected and confirmed incidents) must be reported to EPA under the provisions of 40 CFR § 158.2140(d).

VIII. GLOSSARY OF ACRONYMS AND ABBREVIATIONS

ASAE	American Society of Agricultural Engineers
BPPD	Biopesticides and Pollution Prevention Division
BRAD	Biopesticides Registration Action Document
CFR	Code of Federal Regulations
CFU	colony-forming unit(s)
cfu/kg	colony-forming units per kilogram
cfu/mL	colony-forming units per milliliter
cP	centipoise
EDSP	Endocrine Disruptor Screening Program
EP	end-use product
EPA	Environmental Protection Agency (the "Agency")
FFDCA	Federal Food, Drug, and Cosmetic Act
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FQPA	Food Quality Protection Act
FR	Federal Register
g/mL	gram per milliliter
LC ₅₀	median lethal concentration. A statistically derived concentration of a substance that can be expected to cause death in 50% of test animals. It is

	usually expressed as the weight of substance per weight or volume of water, air, or feed (e.g., mg/L, mg/kg, or ppm).
LD ₅₀	median lethal dose. A statistically derived single dose that can be expected to cause death in 50% of the test animals when administered by the route indicated (oral, dermal, or inhalation). It is expressed as a weight of substance per unit weight of animal (e.g., mg/kg).
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MP	manufacturing-use product
mPa·s	milliPascal-second, term used as the unit of dynamic viscosity.
MRID No.	Master Record Identification Number
NIOSH	National Institute for Occupational Safety and Health
NRRL	Northern Regional Research Laboratory
OCSP	Office of Chemical Safety and Pollution Prevention
OPP	Office of Pesticide Programs
PC Code	Pesticide Chemical Code
PP	Pesticide Petition
PPE	personal protective equipment
ppm	parts per million
TGAI	technical grade of the active ingredient
U.S.	United States

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APPENDIX A. MICROBIAL PESTICIDES DATA REQUIREMENTS (40 CFR PART 158 – SUBPART V)

**TABLE 1. Product Analysis Data Requirements for the End-Use Product (EP), CX-9030
(40 CFR § 158.2120)**

OCSPP Guideline Number	Data Requirement	Results	MRID No.
885.1100	Product Identity	Submitted data fulfill the requirement for product identity. CX-9030 contains 25.0% by weight <i>Bacillus amyloliquefaciens strain strain D747</i> (minimum of 5×10^{10} CFU/g)	481655-01 CSF dated 10/18/2011
885.1200	Manufacturing Process	Submitted data fulfill the requirement for manufacturing process.	481655-01
Not applicable	Deposition of a Sample in a Nationally Recognized Culture Collection	Submitted data fulfill the requirement for deposition. Culture on deposit under Accession Number NRRL B-50405.	481655-01
885.1300	Discussion of Formation of Unintentional Ingredients	Submitted data fulfill the requirement for discussion of formation of unintentional ingredients.	481655-01
885.1400	Analysis of Samples	Submitted data fulfill the requirement for analysis of samples.	481655-01
885.1500	Certification of Limits	Limits listed on the confidential statement of formula are adequate/acceptable	CSF dated 10/18/2011
Additional Studies			
830.1800	Enforcement Analytical Method	Submitted data fulfill the requirement for an enforcement analytical method	481655-01

**TABLE 2. Product Analysis Data Requirements for the End-Use Product (EP), CX-9032
(40 CFR § 158.2120)**

OCSPP Guideline Number	Data Requirement	Results	MRID No.
885.1100	Product Identity	Submitted data fulfill the requirement for product identity. CX-9030 contains 98.95% by weight <i>Bacillus amyloliquefaciens strain strain D747</i> (minimum of 1×10^{10} CFU/g)	481655-01 CSF dated 10/18/2011
885.1200	Manufacturing Process	Submitted data fulfill the requirement for manufacturing process.	481657-01 481655-01
Not applicable	Deposition of a Sample in a Nationally Recognized Culture Collection	Submitted data fulfill the requirement for deposition. Culture on deposit under Accession Number NRRL B-50405.	481657-01 481655-01
885.1300	Discussion of Formation of Unintentional Ingredients	Submitted data fulfill the requirement for discussion of formation of unintentional ingredients.	481657-01 481655-01
885.1400	Analysis of Samples	Submitted data fulfill the requirement for analysis of samples.	481655-01 481657-01
885.1500	Certification of Limits	Limits listed on the confidential statement of formula are adequate/acceptable	CSF dated 10/18/2011
Additional Studies			
830.1800	Enforcement Analytical Method	Submitted data fulfill the requirement for an enforcement analytical method	481655-01

TABLE 3. Physical and Chemical Characteristics for the Technical Grade of the Active Ingredient (TGAI) *Bacillus amyloliquefaciens* strain strain D747 / CX-9030 (EP). (40 CFR § 158.2120)

OCSPP Guideline Number	Data Requirement	Results		MRID No.
		TGAI	CX-9030 (EP)	
830.6302	Color	Beige	Not Applicable	481657-02
830.6303	Physical State	Fine powder	Not applicable	481657-02
830.6304	Odor	Yeast odor	Not applicable	481657-02
830.6313	Stability to Normal and Elevated Temperatures, Metals, and Metal Ions	Spores inactivated at 54°C	Not applicable	481657-02
830.6314	Oxidation/Reduction: Chemical Incompatibility	Not applicable, the product does not contain oxidizing or reducing agents		481657-02
830.6315	Flammability	Not applicable, the product does not contain flammable ingredients		481657-02
830.6316	Explodability	Not applicable, the product does not contain explosive ingredients		481657-02
830.6317	Storage Stability	Stable up to one year at 25°C without loss of viability		481657-02 481657-03
830.6319	Miscibility	Not applicable, the product is not an emulsifiable liquid. (refer to test note #2 of 40 CFR § 158.2120(d)).		481657-02
830.6320	Corrosion Characteristics	Not applicable, the product is a powder.		481657-02
830.6321e	Dielectric Breakdown Voltage	Not applicable, the product is not for use around electrical equipment		481657-02
830.7000	pH	6.5 – 7.0 (1% w/w)	7.5- 8.0	481657-02
830.7100	Viscosity	Not applicable, the product is a powder.	Not Applicable. CX-9030 is not a liquid.	481657-02
830.7300	Density/Relative Density/Bulk Density (Specific Gravity)	0.307- 0.375 g/ml	0.60-.0.78 g/ cm ³	481657-02

TABLE 4. Physical and Chemical Characteristics for CX-9032 (EP). (40 CFR § 158.2120)

OCSP Guideline Number	Data Requirement	Results		MRID No.
		TGAI	CX-9030 (EP)	
830.6302	Color	Beige	Light brown	481655-02
830.6303	Physical State	Fine powder	Liquid	481655-02
830.6304	Odor	Yeast odor	Yeast odor	481655-02
830.6313	Stability to Normal & Elevated Temperatures, Metals, & Metal Ions	Spores inactivated at 54°C..		481655-02
830.6317	Storage Stability	Stable up to one year at 25°C without loss of viability	Stable up to 78 days at 25°C without loss of viability. As a term of the registration, EPA is requiring submission of the results of a one-year storage stability and corrosion characteristics study be submitted within one year.	481655-02
830.6319	Miscibility	Not applicable; product is not an emulsifiable liquid. (refer to test note #2 of 40 CFR § 158.2120(d)).		481655-02
830.6320	Corrosion Characteristics	Not applicable; product is a powder.	None evident to polyethylene packaging after 78 days. As a term of the CX-9032 (EP) registration, EPA is requiring submission of the results of a one-year storage stability & corrosion characteristics within one year.	481655-02
830.7000	pH	6.5 – 7.0 (1% w/w)	4.2 - 4.3 (1% w/w).	481655-02
830.7100	Viscosity	Not applicable, the product is a powder.	4.6 - 16.0 milliPascal-second (mPa s) at 25°C	481655-02
830.7300	Density/Relative Density/Bulk Density (Specific Gravity)	0.307- 0.375 g/ml	1.02 – 1.03 g/mL	481655-02

TABLE 5. Toxicology Data Requirements for the Technical Grade of the Active Ingredient (TGAI) (40 CFR § 158.2140)			
OCSPP Guideline Number	Data Requirement	Results	MRID No.
		TGAI	
Tier I			
885.3050	Acute Oral Toxicity/Pathogenicity	No evidence of infectivity, pathogenicity or toxicity was found from oral administration of 1.0x10 ⁸ CFU <i>Bacillus amyloliquefaciens</i> strain D747 to rats. Clearance from fecal material occurred by day 14 and no viable organisms were recovered from blood or any other organ or tissue. Classification: Acceptable	481657-04
885.3150	Acute Pulmonary Toxicity/Pathogenicity	No evidence of infectivity, pathogenicity or toxicity was found from intratracheal administration of 1.0x10 ⁷ spores <i>B. amyloliquefaciens</i> strain D747 to rats. Classification: Acceptable	481657-06
885.3200	Acute Injection Toxicity/Pathogenicity (Intravenous)	Not toxic, infective, and/or pathogenic to rats when dosed intravenously at 1.0x10 ⁷ spores per animal. Classification: Acceptable	481657-05
885.3400	Hypersensitivity Incidents	No hypersensitivity incidents, including immediate-type or delayed-type reactions of humans and domestic animals that occurred during research, development, or testing of the TGAI/MP, were reported. Future hypersensitivity incidents must be reported (For reporting format: OCSPP Guideline 885.3400).	479450-23
885.3500	Cell Culture	Not required. <i>B. amyloliquefaciens</i> strain D747 is not a virus (Test note #4 of 40 CFR § 158.2140(d)).	
Tiers II and III			
Not required for <i>Bacillus amyloliquefaciens</i> strain D747 based on the lack of acute toxicity/pathogenicity in the Tier I studies.			

**TABLE 6. Toxicology Data Requirements for the End-Use Product (EP), CX-9030
(40 CFR § 158.2140)**

OCSPP Guideline Number	Data Requirement	Results	MRID No.
885.3400	Hypersensitivity Incidents	No hypersensitivity incidents, including immediate-type or delayed-type reactions of humans and domestic animals that occurred during research, development, or testing of the EP, were reported by the applicant. Any future hypersensitivity incidents must be reported per OCSPP Guideline 885.3400.	
870.1100	Acute Oral Toxicity	Oral LD ₅₀ > 5000 mg/Kg Classification: Acceptable TOXICITY CATEGORY IV	481657-07
870.1200	Acute Dermal Toxicity	Dermal LD ₅₀ > 5050 mg/Kg Classification: Acceptable TOXICITY CATEGORY IV	481657-08
870.1300	Acute Inhalation Toxicity	Inhalation LC ₅₀ > 2.18 mg/L Classification: Acceptable TOXICITY CATEGORY IV	481657-09
870.2400	Acute Eye Irritation	The maximum average irritation score of 18.3 obtained 1 hour after treatment declined to 17.33 after 24 hours, 2 after 48 hours and 0 after 72 hours following ocular administration of 0.1 mL <i>B. amyloliquefaciens</i> strain D747 to New Zealand White rabbits in a 72 hour observation period. Classification: Acceptable TOXICITY CATEGORY III	481657-10
870.2500	Primary Dermal Irritation	No evidence of irritation was found from dermal administration of 500 mg <i>B. amyloliquefaciens</i> strain D747 CX-9030 to rabbits during the 4 hour exposure and 72 observation periods. The dermal irritation score for <i>B. amyloliquefaciens</i> strain D747 CX-9030 was 0.00. Classification: Acceptable TOXICITY CATEGORY IV	481657-11

**TABLE 7. Toxicology Data Requirements for the End-Use Product (EP), CX-9032
(40 CFR § 158.2140)**

OCSPP Guideline Number	Data Requirement	Results	MRID No.
885.3400	Hypersensitivity Incidents	No hypersensitivity incidents including immediate-type or delayed-type reactions of humans and domestic animals that occurred during research, development, or testing of the EP were observed or reported. All hypersensitivity incidents must be reported per OCSPP Guideline 885.3400.	
870.1100	Acute Oral Toxicity	Waiver request submitted. Requirement satisfied by submitted MP data. Oral exposure to the MP showed no adverse effects including infectivity, pathogenicity and toxicity up to the limit dose. Inerts are exempt from tolerance. No additional oral toxicity is expected from inerts. Classification: Acceptable	481655-04
870.1200	Acute Dermal Toxicity	Waiver request submitted. Requirement adequately addressed by CX-9030 EP data as well as, dermal irritation testing on CX-9032-EP. Dermal toxicity and irritation testing for the CX-9030 EP and dermal irritation data on CX-9032 EP showed no adverse effects up to the limit doses. No additional dermal toxicity is expected from inerts. Classification: Acceptable	481655-04 481655-06 481655-11 481657-08
870.1300	Acute Inhalation Toxicity	Waiver request submitted. Pulmonary exposure to the MP showed no adverse effects, including infectivity, pathogenicity or toxicity though slight toxicity lasting 2 days from a 4-hour aerosol inhalation administration of 2.18 mg/L, where inert ingredients were also present, was noted in a CX-9030 EP study. No additional toxicity is expected from this EP's inert ingredients. Classification: Acceptable	481655-04 481657-06 481657-09
870.2400	Acute Eye Irritation	The maximum average irritation score of 0.667 at 1 hour after treatment declined to 0 after 24 hours following ocular administration of 0.1 mL <i>B. amyloliquefaciens</i> strain D747 CX-9032 to New Zealand White rabbits (72-hour observation period). Classification: Acceptable TOXICITY CATEGORY IV	481655-05

**TABLE 7. Toxicology Data Requirements for the End-Use Product (EP), CX-9032
(40 CFR § 158.2140)**

OCSPP Guideline Number	Data Requirement	Results	MRID No.
870.2500	Primary Dermal Irritation	No irritation occurred from dermal administration of 0.5 mL undiluted <i>B. amyloliquefaciens</i> strain D747 CX-9032 to shaved skin of rabbits during the 4 hour exposure and 72 observation periods. The dermal irritation score for <i>B. amyloliquefaciens</i> strain D747 CX-9032 was 0.00. Classification: Acceptable TOXICITY CATEGORY IV	481655-06

TABLE 8. Nontarget Organism Toxicity and Environmental Fate Data Requirements for the Technical Grade of the Active Ingredient (TGAI), *Bacillus amyloliquefaciens* strain D747 (40 CFR § 158.2150)

OCSPP Guideline Number	Data Requirement	Results	MRID No.
Tier I			
885.4050	Avian Oral Toxicity	A study showed that <i>B. amyloliquefaciens</i> D747 is not toxic to birds at 8.9×10^9 spores/bird. Classification: Supplemental Scientific rationale is sufficient to conclude that <i>B. amyloliquefaciens</i> D747 is not expected to pose a hazard to birds. Classification: Acceptable	48165712 48621501
885.4100	Avian Inhalation Toxicity/Pathogenicity	Not required. <i>B. amyloliquefaciens</i> D747 is not considered to be pathogenic to birds	
885.4150	Wild Mammal Toxicity/Pathogenicity	Tests required by 40 CFR § 158.2140 are adequate/ appropriate for assessment of hazards to wild mammals. <i>B. amyloliquefaciens</i> D747 was not infective, toxic or pathogenic to laboratory rats 1.0×10^8 CFU/animal	48165704
885.4200	Freshwater Fish Toxicity/Pathogenicity	A 30-day study shows that the LC_{50} to rainbow trout is 8×10^{10} CFU/L. The NOEC for sublethal effects is 1.44×10^{10} CFU/L. Classification: Acceptable	48165713
885.4240	Freshwater Invertebrate Toxicity/Pathogenicity	A 21-day study shows that the EC_{50} to <i>Daphnia magna</i> based on mortality is 3.7×10^{10} CFU/L. The NOEC for sublethal effects is 2.84×10^8 CFU/L. Classification: Acceptable	48165714
885.4280	Estuarine/Marine Fish and Invertebrate Testing	Not required. <i>B. amyloliquefaciens</i> D747 is not to be applied directly to water and is not expected to reach estuarine or marine environments in significant quantities.	
885.4300	Nontarget Plant Testing	A study submitted was determined to be unacceptable ; however, testing is not required because. <i>B. amyloliquefaciens</i> is not related to known plant pathogens	48165715

TABLE 8. Nontarget Organism Toxicity and Environmental Fate Data Requirements for the Technical Grade of the Active Ingredient (TGAI), <i>Bacillus amyloliquefaciens</i> strain D747 (40 CFR § 158.2150)			
OCSPP Guideline Number	Data Requirement	Results	MRID No.
885.4340	Nontarget Insect Testing	Studies with three species of arthropods were determined to be unacceptable . Additional scientific rationale was submitted to show that <i>B. amyloliquefaciens</i> is not expected to be toxic or pathogenic to nontarget insects. Classification: Acceptable	48165716 48621502
		885.4380	Honey Bee Testing
Tiers II, III, and IV			
Not required for <i>Bacillus amyloliquefaciens</i> strain D747 based on the current uses and application methods.			

APPENDIX B. PESTICIDE PRODUCTS

TABLE 9. Table Title?

EPA Registration Number	Registration Name	Percentage Active Ingredient	Formulation Type	Use Site(s)	Method(s) of Application	Application Rate	Target Pest
70051-107	CX-9032	98.35%	End Use – Aqueous Suspension	Various agricultural and greenhouse crops (e.g., vegetables, tree fruits, berries, grapes and tropical fruit, tree nuts, herbs and spices, coffee, tobacco, hops, forestry seedlings ornamentals, and turf)	Tractor mounted boom, airblast, hose-end, backpack and other pressurized sprayers; foggers or mist blowers; water wheel and other drench applicators; soil injection; aerial; and chemigation with drip or sprinkler irrigation and cutting or root dip	Rate listed on label varies depending on application method from 0.5 pints /acre to 6 quarts/acre	Various fungal and bacterial pests listed on the label including: <i>Alternaria</i> , <i>Botrytis cinerea</i> <i>Didymella bryoniae</i> <i>Phoma cucurbitacearum</i> <i>Erisphe</i> , <i>Fusarium</i> , <i>Macrophomina phaseoli</i> <i>Monosporascus cannonballus</i> <i>Peronospora</i> , <i>Phytophthora</i> <i>Pseudomonas syringae</i> pv. <i>tomato</i> <i>Pseudoperonospora</i> spp. <i>Puccinia</i> spp. <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Sphaerotheca</i> spp. <i>Verticillium</i> , spp. <i>Xanthomonas</i> spp.
70051-108	CX-9030	25.0%	Water Dispersible Granule	Various agricultural and greenhouse crops (e.g., vegetables, ornamentals, and turf)	Tractor mounted boom, airblast, hose-end, backpack and other pressurized sprayers; foggers or mist blowers; water wheel and other drench applicators; shank or other soil injection equipment; aerial; and chemigation with drip or sprinkler irrigation and cutting or root dip	0.25 –3 pounds per acre	Various fungal and bacterial pests listed on the label including: <i>Alternaria</i> , <i>Botrytis cinerea</i> <i>Didymella bryoniae</i> <i>Phoma cucurbitacearum</i> <i>Erisphe</i> <i>Fusarium</i> , <i>Macrophomina phaseoli</i> <i>Monosporascus cannonballus</i> <i>Peronospora</i> , <i>Phytophthora</i> <i>Pseudomonas syringae</i> pv. <i>tomato</i> <i>Pseudoperonospora</i> spp. <i>Puccinia</i> spp. <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Sphaerotheca</i> spp. <i>Verticillium</i> , spp., <i>Xanthomonas</i> spp.



Re: *Confidential: Fw: CBI Statement and BRAD for clearance of
EPA-HQ-OPP-2011-0853-DRAFT-0004 by November 4, 2011 

Kimberly Smith to: Susanne Cerrelli

11/01/2011 11:45 AM

Cc: Anthia Peters, Latasha White

This message is encrypted.

Susanne:

Once you have loaded the documents into the above subject docket, please contact the docket office, provide an index of the items you have loaded and let them know your anticipated publication date. The docket staff will notify me. This ensures everyone is in the loop and aware of the dockets for posting. If your date is for November 4th, I would suggest having the final documents in FDMS by tomorrow. We normally would like them sooner, but I understand your document (BRAD) has not been finalized. The sooner you can get them loaded into FDMS the better.

Kimberly Smith
U.S. EPA/OPP
Information Technology and
Resources Management Division
Public Information and Records Integrity Branch
PH: 703-305-6434

Visit OPP's FOIA Website@ www.epa.gov/pesticides/foia

Susanne Cerrelli could be considered CBI? (many data requirem...

10/27/2011 09:39:27 AM

From: Susanne Cerrelli/DC/USEPA/US
To: Kimberly Smith/DC/USEPA/US@EPA
Date: 10/27/2011 09:39 AM
Subject: *Confidential: Fw: CBI Statement and BRAD for clearance of
EPA-HQ-OPP-2011-0853-DRAFT-0004 by November 4, 2011



BRAD post Gina DRT2 clean copy to glve Kimberly.docx

Kimberly --

I left a message on your phone. I replaced the file for docket item
EPA-HQ-OPP-2011-0853-DRAFT-0004 with the file above.

Please note as discussed last week, I have asked the remaining two reviewers/editors to use track changes, so that the changes made will be evident.

I was not sure if the statement in the product chem tables that says "Not applicable, the product is not pure active ingredient" on pages 24 and 25 could be considered CBI? (many data requirements are only applicable to purified active ingredient.)

Below is the clearance statement for Chris Dively , the registrant. She means to be helpful. If you need anything or further clarifications , please let me know.

I also would like to put new draft labels in this docket, but it isn't absolutely necessary. I still am going back and forth with the applicant with revisions. My deadline is November 4 , 2011 to open this docket. What is the deadline for giving you the latest labels if I want them to post in the docket? What is the absolute latest to let you know of what slight changes are made to the BRAD, above?

Please feel free to call me at 703-308-8077.

Regards.

Susanne Cerrelli

Regulatory Action Leader
Microbial Pesticides Branch
Biopesticides Pollution Prevention Division (7511P)

703-308-8077(w)

— Forwarded by Susanne Cerrelli/DC/USEPA/US on 10/27/2011 09:03 AM —

From: "Dively, Chris" <cdively@certisusa.com>
To: Susanne Cerrelli/DC/USEPA/US@EPA
Cc: "Dively, Chris" <cdively@certisusa.com>
Date: 10/25/2011 03:23 PM
Subject: FW: CBI Statement

Dear Susanne,

On behalf of Certis USA, I would like to amend the CBI Statement in the previous email. Information submitted to support the registration applications and tolerance exemption petition for CX-9030 and CX-9032, that does not have a Confidentiality Statement in the data volume (Per PR Notice 86-5) is not considered as Confidential Business Information per FIFRA and Part 158 Guidelined. Data volumes that include CBI are manufacturing process data, formation of unintentional ingredients, Certification of Ingredients –CSFs, and Analyses of Samples.

Sincerely,

Chris Dively
Director of Regulatory Affairs

From: Dively, Chris
Sent: Tuesday, October 25, 2011 2:59 PM
To: Dively, Chris
Subject: FW: CBI Statement

From: Dively, Chris
Sent: Friday, October 21, 2011 5:02 PM
To: 'Cerrelli.Susanne@epamail.epa.gov'



FW: CBI Statement
Dively, Chris to: Susanne Cerrelli
Cc: "Dively, Chris"

10/25/2011 03:23 PM

Dear Susanne,

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Chris Dively
Director of Regulatory Affairs

From: Dively, Chris
Sent: Tuesday, October 25, 2011 2:59 PM
To: Dively, Chris
Subject: FW: CBI Statement

From: Dively, Chris
Sent: Friday, October 21, 2011 5:02 PM
To: 'Cerrelli.Susanne@epamail.epa.gov'
Cc: Dively, Chris
Subject: CBI Statement

Dear Susanne,

On behalf of Certis USA, information that was submitted to EPA in support of D-747 petition and registration outside of the Section 158 Guidelines are not claimed as CBI. All product chemistry information, including Confidential Statements of Formula, Product ID and characterization, product properties information, all analytical data, and other manufacturing process data is claimed as Confidential Business Information per PR Notice 86-5.

Sincerely,

Chris Dively
Director of Regulatory Affairs

Susanne: If this statement is not what you are referencing please let me know.



BIOPESTICIDES REGISTRATION ACTION DOCUMENT

DRAFT

Bacillus amyloliquefaciens strain D747

Pesticide Chemical (PC) Code: 016482

**U.S. Environmental Protection Agency
Office of Pesticide Programs
Biopesticides and Pollution Prevention Division**

November 10, 2011 version

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BIOPESTICIDES REGISTRATION ACTION DOCUMENT TEAM

**Office of Pesticide Programs (OPP)
Biopesticides and Pollution Prevention Division
Microbial Pesticides Branch**

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Product Analysis, Human Health
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Regulations

Sheryl K. Reilly, Ph.D.
Susanne Cerrelli

Chief, Microbial Pesticides Branch
Regulatory Action Leader

I. EXECUTIVE SUMMARY

Certis USA, LLC, ("Certis" or "applicant") has proposed to register *Bacillus amyloliquefaciens* strain D747 as the active ingredient in two end-use pesticide products, CX-9030 (EPA File Symbol 70051-RNI) and CX-9032 (EPA File Symbol 70051-RNT). The products are intended for use to control fungi and bacteria in outdoor agricultural crops, greenhouses, nurseries, shadehouses, ornamentals, and turfgrass. *B. amyloliquefaciens* strain D747 was initially identified by Certis as "*Bacillus subtilis* variant *amyloliquefaciens* strain D747," since *B. subtilis* and *B. amyloliquefaciens* were originally classified as subtypes or variants of the same species. *B. amyloliquefaciens* is now considered a separate species, and the correct taxonomic designation is used in this Biopesticides Registration Action Document ("BRAD") (Priest et. al., 1987; Logan and de Vos, 2009; and Murray et. al, 2007).

EPA scientists reviewed product analysis, mammalian and nontarget organism toxicity data, and other information submitted by Certis to support the proposed product registrations. The product analysis data requirements for *B. amyloliquefaciens* strain D747, including product chemistry and composition, analysis of samples, and physical and chemical characteristics, were fulfilled by acceptable studies conducted in accordance with Agency guidelines. Mammalian toxicity data (acute oral, injection, and pulmonary toxicity/pathogenicity) and information from peer-reviewed scientific literature demonstrated that *B. amyloliquefaciens* strain D747 is not toxic, infective or pathogenic in laboratory rats. Acceptable nontarget organism data also demonstrated that *B. amyloliquefaciens* strain D747 is not toxic to estuarine and marine fish and invertebrates, nontarget insects (including honey bees), and nontarget plants.

We have assessed human health and environmental risks from the proposed uses of *B. amyloliquefaciens* strain D747, and determined that the pesticide would not cause unreasonable adverse effects to nontarget organisms when used in accordance with the directions on the proposed labels, and in accordance with good agricultural practices. Additional mammalian and nontarget organism toxicity data are not required for the proposed uses and application methods.

Bacillus species, including *B. amyloliquefaciens*, are commonly found in soils, including agricultural settings, and are naturally present on fresh produce. The Manual of Clinical Microbiology (9th Edition) states that dried foods, such as spices, milk powder and grains, often contain large amounts of *Bacillus* spores. *B. amyloliquefaciens* is not known to produce any mammalian toxins, and no food-borne disease outbreaks associated with *B. amyloliquefaciens* have been reported. Given that the microorganism occurs naturally in soils, exposure to *B. amyloliquefaciens* from surface and groundwater may occur. No adverse effects have been reported, and none are expected from exposure to *B. amyloliquefaciens* through drinking water.

Despite the low toxicological profile of *B. amyloliquefaciens* strain D747, personal protective equipment (PPE) is required for pesticide handlers that are frequently exposed to the active ingredient for prolonged periods. Handlers will be directed to wear a long-sleeved shirt, long pants, socks, shoes, waterproof gloves, and a dust/mist filtering respirator meeting National Institute for Occupational Safety and Health (NIOSH) standards of at least N-95, R-95, or P-95. EPA may require additional PPE, other than the standard described above, if additional pesticide uses resulting in increased exposures are proposed in the future.

EPA has concluded that, based upon the results of the toxicity tests and lack of adverse incidents, there is a reasonable certainty that no harm will result to the United States population, including

infants and children, from dietary (including drinking water) and aggregate exposure to residues of *B. amyloliquefaciens* strain D747 from the proposed pesticide uses. The proposed products meet the standards for registration under Section 3(c)(5) of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

On October 1, 2009, EPA announced a new policy to provide a more meaningful opportunity for the public to participate in major registration decisions before they occur. According to this policy, EPA intends to provide a public comment period prior to making a registration decision for, at minimum, the following types of applications: new active ingredients; first food uses; first outdoor uses; first residential uses; or any other registration actions for which EPA believes there may be significant public interest.

Consistent with the policy of making registration actions more transparent, the proposed pesticide products containing *B. amyloliquefaciens* strain D747, a new active ingredient, are subject to a 30-day comment period. In addition to containing a new active ingredient, the registration of these products would result in the first outdoor use, first residential use and first food use for *B. amyloliquefaciens* strain D747. The docket identification number, associated with these registration actions and accessed through either <http://www.regulations.gov/> or <http://www.epa.gov/pesticides/regulating/registration-status.html>, is EPA-HQ-OPP-2011-0853. The following documents are available for comment in EPA-HQ-OPP-2011-0853: (1) draft *B. amyloliquefaciens* strain D747 Biopesticides Registration Action Document (BRAD); (2) environmental risk assessment for *B. amyloliquefaciens* strain D747; (3) draft product label for the end-use product, CX-9030 (EPA File Symbol 70051-RNI); and (4) draft product label for the end-use product, CX-9032 (EPA File Symbol 70051-RNT). While a final decision on registration is contingent upon review and consideration of public comments, EPA presently believes that, based upon the risk assessment and information submitted in support of the CX-9030 and CX-9032 EPs, it is in the best interest of the public and the environment to issue these registrations. The basis for this preliminary decision can be found in the risk assessment for *B. amyloliquefaciens* strain D747, which is presented in this document.

II. ACTIVE INGREDIENT OVERVIEW

Biological Name:	<i>Bacillus amyloliquefaciens</i> strain D747
Culture Deposit:	Agricultural Research Service Culture Collection (also known as the Northern Regional Research Laboratory (NRRL) Collection) in Peoria, Illinois, under Accession Number NRRL B-50405.
OPP Chemical Code:	016482
Type of Pesticide:	Microbial Pesticide – Insecticide

See [Appendix B](#) for specific information (e.g., use sites, application rates, methods of application, formulation types, and target pests) regarding the registered pesticide products containing this active ingredient.

III. REGULATORY BACKGROUND

A. Applications for Pesticide Product Registration

Certis USA, LLC (address: 9145 Guilford Road, Suite 175, Columbia, MD, 21046), submitted applications to register two end-use pesticide product, CX-9032 and CX-9030, under FIFRA section 3(c)(5) on July 26, 2010. EPA announced receipt of these applications to register pesticide products containing a new active ingredient on February 2, 2011 ([76 Federal Register \(FR\) 5805](#)), and opened a 30-day public comment period, pursuant to the provisions of FIFRA section 3(c)(4). No comments were received following this publication.

B. Food Tolerance Exemption

Concurrent with its registration applications, and under the Federal Food, Drug, and Cosmetic Act (FFDCA) section 408(d), Certis USA, LLC, submitted a petition to establish an exemption from the requirement of a tolerance for *Bacillus subtilis* variant *amyloliquefaciens* strain D747 (Pesticide Petition (PP) 0F7760). In the Federal Register of February 4, 2011 ([76 FR 6465](#)), EPA announced that Certis USA, LLC, proposed to establish an exemption from the requirement of a tolerance for residues of the insecticide, *Bacillus subtilis* variant *amyloliquefaciens* strain D747, in or on all food commodities, and opened a 30-day comment period. No comments were received following this publication. The correct taxonomic designation of the microorganism is *Bacillus amyloliquefaciens* strain D747; therefore, the tolerance exemption, when established, will reflect the correct name of the active ingredient.

IV. RISK ASSESSMENT

In the Federal Register of October 26, 2007, EPA issued a Final Rule establishing changes to the data requirements that support the registration of microbial pesticides. The rule also updated the definition for microbial pesticides ([72 FR 61002](#)), and became effective on December 26, 2007. The data and information evaluated for this BRAD were considered in accordance with these requirements.

The classifications or ratings that are given for each data requirement in this BRAD were assigned by the EPA scientists who reviewed the data, and convey the usefulness of the information for the human health and nontarget risk assessment purposes. "Acceptable" indicates that a study is scientifically sound and is useful for risk assessment. A "supplemental" classification indicates the studies provided some information that can be useful for risk assessment. "Supplemental" ratings are given to studies that are not required for registration, as well as those that are required. In the latter case, the study lacks information that should have been obtained if it was conducted according to the guideline associated with the data requirement. Sometimes the missing information would not add anything necessary to inform a risk assessment, and the study classification remains "supplemental." A classification of "supplemental:upgradable" indicates the study lacks necessary information, but if it is made available by the applicant, the study may be upgraded to "acceptable." An "unacceptable" rating indicates that new data must be submitted.

Toxicity categories are assigned to acute toxicity studies, based upon any signs of toxicity (hazards) observed in the test animals during the course of the study, whether the study was conducted in accordance with test guidelines or comes from other sources, such as peer-reviewed, scientific literature. The active ingredient or particular product is classified into Toxicity Category I, II, III, or IV, where Toxicity Category I indicates the highest toxicity, and Toxicity Category IV indicates the lowest toxicity (see [40 CFR § 156.62](#)).

A. Product Analysis Assessment ([40 CFR § 158.2120](#))

All product analysis data requirements for *B. amyloliquefaciens* strain D747 have been fulfilled for the proposed product registrations. Refer to Tables 1, 2, 3, and 4 in [Appendix A](#) for a brief summary of the data requirements, including both generic and product-specific information.

B. Human Health Assessment ([40 CFR § 158.2140](#))

1. Toxicity

All Tier I mammalian toxicity data requirements for *B. amyloliquefaciens* strain D747 have been fulfilled for the proposed product registrations. Refer to Tables 5, 6 and 7. Based on the lack of acute toxicity/pathogenicity, Tier II and Tier III studies were not required.

For a comprehensive summary of the generic and product-specific toxicity data requirements described below, refer to Tables 5, 6 and 7 in [Appendix A](#).

a. Acute Toxicity/Pathogenicity – Tier I

Acute Oral Toxicity/Pathogenicity (Office of Chemical Safety and Pollution Prevention (OCSPP) Guideline 885.3050; Master Record Identification Number (MRID No. 481657-04):

B. amyloliquefaciens strain D747 was administered once orally to 14 rats of both sexes (5-weeks old) at a single dosage of 10^8 colony-forming units (CFU) per animals. No deaths occurred, and no abnormalities (clinical signs, body weight) were observed, during the study or at necropsy. The test microbe was detected at $10^3 - 10^5$ CFU/g in feces 1 day after administration of the test material, but was not detected on day 14. The examination for internal persistence did not detect the test microbe in any organs or tissues, such as the kidney, brain, liver, lung, spleen, stomach, small intestine (duodenum), large intestine (cecum), mesenteric lymph nodes, or blood, throughout the experimental period. Fecal clearance occurred by day 14, and no viable organisms were recovered from blood or other organs or tissues. The results of this acceptable study demonstrated that *B. amyloliquefaciens* strain D747 was not infective, pathogenic, or toxic to rats when orally dosed with 1.0×10^8 CFU / animal.

Acute Pulmonary Toxicity/Pathogenicity (OCSPP Guideline 885.3150; MRID No. 481657-06):

B. amyloliquefaciens strain D747 was administered once intratracheally to 20 male and female Sprague-Dawley rats (5-week old) at a dosage of 10^7 CFU per animal. No deaths occurred, and no abnormalities (clinical signs, body weight) were observed during the study or at necropsy. The examination for internal persistence showed that the test microbe was detected shortly after administration in the lung, trachea, and nasal cavity. The test microbes were not detected in the nasal cavity on day 7, and almost completely cleared from the trachea by day 60, when the study ended. The presence of the test microbes decreased in the lungs by approximately $10^2 - 10^3$ CFU/g from day 0 to day 60. The test microbes were detected in the bronchial lymph nodes on day 3.

Since many test microbes remained in the trachea on day 3, their presence in the bronchial lymph nodes on day 3 was attributed to transfer by macrophages from the respiratory tract to the lymph nodes. This conclusion was supported by the observation that a particle larger than 1 μm in diameter administered into the trachea and bronchi was phagocytized by a macrophage and carried to a lymph node. The presence of the microbes in the lungs, though decreasing throughout the observation period, was attributed to the continuous transfer of viable test organisms to the bronchial lymph nodes. This result is not unusual for spore-forming bacteria, since bacterial spores are extremely tolerant of adverse conditions, and take a longer time for the immune system to clear than bacteria that do not form spores. Since a pattern of clearance was demonstrated, the remaining viable cells were considered to be spores, which take longer for a healthy immune system to clear. This acceptable study demonstrated that *B. amyloliquefaciens* strain D747 was not toxic or pathogenic to rats when dosed intratracheally at 1.0×10^7 CFU/ animal.

Acute Injection Toxicity/Pathogenicity (Intravenous) – Rat (OCSPP Guideline 885.3200; MRID No. 481657-05): In an acute intravenous injection toxicity and pathogenicity study, groups of 17 male and female Sprague-Dawley rats (5-weeks old) were injected with *B. amyloliquefaciens* strain D747 at a dosage of 10^7 CFU per animal, and the influence on the animals was investigated. No deaths occurred, and there were no observed abnormalities (clinical signs, body weight) during the study or at necropsy. The examination for internal persistence of the test microbe showed that the test microbes were mainly detected in the kidney, liver, spleen, and blood shortly after administration. The test microbe decreased after that and was not detected in the blood from day 14; clearance from the kidney occurred by day 60. McClintock et al. previously reported that when *B. thuringiensis* and *B. subtilis*, which are both spore-forming bacteria, were administered intravenously to rats, clearance from the liver and spleen is difficult. In this study, the test microbe did not completely disappear from these organs by day 60. No test microbes were detected in the brain, and only a few viable microbes at the limit level were sporadically detected in the small and large intestines, and lymph nodes, but were cleared by day 60. This acceptable study demonstrated that *B. amyloliquefaciens* strain D747 was not toxic, infective, or pathogenic to rats when injected intravenously with 1.0×10^7 CFU/ animal.

Hypersensitivity Incidents (OCSPP Guideline 885.3400; MRID No. 481655-05): No hypersensitivity incidents in humans have been reported, and none occurred during research, development, or testing of *B. amyloliquefaciens* strain D747. Should hypersensitivity or other adverse incidents in humans occur in the future, Certis must report them to EPA, in accordance with FIFRA section 6(a)(2).

Cell Culture (OCSPP Guideline 885.3500): This study was not required because *B. amyloliquefaciens* strain D747 is not a virus (refer to test note #4 of 40 CFR § 158.2140(d)).

***b. Acute Toxicity and Subchronic Toxicity/Pathogenicity – Tier II;
Reproductive Fertility Effects, Carcinogenicity, Immunotoxicity, and
Infectivity/Pathogenicity Analysis – Tier III***

Tier II and Tier III studies were not required for *B. amyloliquefaciens* strain D747 based on the lack of acute toxicity/pathogenicity in the Tier I studies.

c. Endocrine Disruptors

As required under FFDCA section 408(p), EPA has developed the Endocrine Disruptor Screening Program (EDSP) to determine whether certain substances (including pesticide active and other ingredients) may have an effect in humans or wildlife similar to an effect produced by a “naturally occurring estrogen, or other such endocrine effects as the Administrator may designate.” The EDSP employs a two-tiered approach to making the statutorily required determinations. Tier 1 consists of a battery of 11 screening assays to identify the potential of a chemical substance to interact with the estrogen, androgen, or thyroid (E, A, or T) hormonal systems. Chemicals that go through Tier 1 screening and are found to have the potential to interact with E, A, or T hormonal systems will proceed to the next stage of the EDSP where EPA will determine which, if any, of the Tier 2 tests are necessary based on the available data. Tier 2 testing is designed to identify any adverse endocrine-related effects caused by the substance, and establish a quantitative relationship between the dose and the E, A, or T effect.

Between October 2009 and February 2010, EPA issued test orders/data call-ins for the first group of 67 chemicals, which contains 58 pesticide active ingredients and 9 inert ingredients. This list of chemicals was selected based on the potential for human exposure through pathways such as food and water, residential activity, and certain post-application agricultural scenarios. This list should not be construed as a list of known or likely endocrine disruptors.

B. amyloliquefaciens strain D747 is not among the group of 58 pesticide active ingredients on the initial list to be screened under the EDSP. Under FFDCA section 408(p), EPA must screen all pesticide chemicals. Accordingly, EPA anticipates issuing future EDSP orders/data call-ins for all pesticide active ingredients.

For further information on the status of the EDSP, the policies and procedures, the list of 67 chemicals, the test guidelines and the Tier 1 screening battery, please visit our website:
<http://www.epa.gov/endo/>.

2. Federal Food, Drug, and Cosmetic Act (FFDCA) Considerations

Section 408(c)(2)(A)(i) of FFDCA allows EPA to establish an exemption from the requirement for a tolerance (the legal limit for a pesticide chemical residue in or on a food) only if EPA determines that the exemption is “safe.” Section 408(c)(2)(A)(ii) of FFDCA defines “safe” to mean that “there is a reasonable certainty that no harm will result from aggregate exposure to the pesticide chemical residue, including all anticipated dietary exposures and all other exposures for which there is reliable information.” This includes exposure through drinking water and in residential settings but does not include occupational exposure. Pursuant to section 408(c)(2)(B) of FFDCA, in establishing or maintaining in effect an exemption from the requirement of a tolerance, EPA must take into account the factors set forth in section 408(b)(2)(C) of FFDCA, which require EPA to give special consideration to exposure of infants and children to the pesticide chemical residue in establishing a tolerance and to “ensure that there is a reasonable certainty that no harm will result to infants and children from aggregate exposure to the pesticide chemical residue....” Additionally, section 408(b)(2)(D) of FFDCA requires that EPA consider “available information concerning the cumulative effects of [a particular pesticide's] . . . residues and other substances that have a common mechanism of toxicity.”

EPA performs a number of analyses to determine the risks from aggregate exposure to pesticide residues. First, EPA determines the toxicity of pesticides. Second, EPA examines exposure to the pesticide through food, drinking water, and through other exposures that occur as a result of pesticide use in residential settings.

Consistent with section 408(b)(2)(D) of FFDCA, EPA has reviewed the available scientific data and other relevant information, and considered its validity, completeness, and reliability and the relationship of this information to human risk. EPA has also considered available information concerning the variability of the sensitivities of major identifiable subgroups of consumers, including infants and children. All of the data requirements have been fulfilled, as described previously, and are presented in Table 5 in [Appendix A](#). The following summarizes the results of EPA's dietary risk assessment for *B. amyloliquefaciens* strain D747.

a. Aggregate Exposure

In examining aggregate exposure, section 408 of FFDCA directs EPA to consider available information concerning exposures from the pesticide residue in food and all other non-occupational exposures, including drinking water from ground or surface water, and through pesticide use in residential and other indoor uses.

Food Exposure and Risk Characterization: *Bacillus* species, including *B. amyloliquefaciens*, are commonly found in the soil in agricultural settings, and are present on fresh produce of all kinds with no known adverse effects. The Manual of Clinical Microbiology (9th edition) mentions that dried food such as spices, milk powder and grains often contain large amounts of *B. spores*. *B. amyloliquefaciens* is not known to produce any mammalian toxins, and no foodborne disease outbreaks associated with *B. amyloliquefaciens* have been reported.

Based on the data and other information submitted to satisfy the data requirements for registration of the manufacturing-use and end-use pesticide products containing the active ingredient, *B. amyloliquefaciens* strain D747, no toxicity, infectivity, pathogenicity or other adverse effects from dietary exposure to are expected (see section IV(B)(1)(a), above, and Table 5 in [Appendix A](#)).

Drinking Water Exposure and Risk Characterization: *B. amyloliquefaciens* is naturally present in soils (Logan and de Vos, 2009); therefore, *B. amyloliquefaciens* may occur in surface and possibly groundwater. According to the World Health Organization, *Bacillus* species are often detected in drinking water even after going through acceptable water treatment processes, largely because the spores are resistant to these disinfection processes (World Health Organization, 2011). Should this microbial pesticide be present, no adverse effects are expected from exposure to *B. amyloliquefaciens* through drinking water, based on the data and other information submitted to satisfy the data requirements for registration of the manufacturing-use and end-use pesticide products containing the active ingredient, *B. amyloliquefaciens* strain D747 (see section IV(B)(1)(a), above, and Table 5 in [Appendix A](#)).

Non-occupational, Residential Risk Characterization: The use sites for these products include residential garden sites and agricultural sites. As stated previously, *B. amyloliquefaciens* is naturally present in soil, and based on the data and other information submitted to satisfy the data requirements for registration of the manufacturing-use and end-use pesticide products containing the active ingredient, *B. amyloliquefaciens* strain D747, no toxicity, infectivity, pathogenicity or

other adverse effects from non-occupational exposure are expected (see section IV(B)(1)(a), above, and Table 5 in [Appendix A](#)).

b. Cumulative Effects from Substances with a Common Mechanism of Toxicity

Section 408(b)(2)(D)(v) of FFDCA requires that, when considering whether to establish, modify, or revoke a tolerance exemption, EPA consider "... available information concerning the cumulative effects of [a particular pesticide's] ... residues and other substances that have a common mechanism of toxicity."

EPA has found that *B. amyloliquefaciens* strain D747 does not share a common mechanism of toxicity with any other microorganism, pesticidal or toxic substance. EPA concludes that there are no cumulative effects associated with *B. amyloliquefaciens* strain D747 that need to be considered. For information regarding how EPA determines common mechanisms of toxicity and evaluates cumulative effects, see EPA's website at:

<http://www.epa.gov/pesticides/cumulative>.

c. Determination of Safety for the United States (U.S.) Population, Infants and Children

FFDCA section 408(b)(2)(C) provides that EPA shall assess the available information about consumption patterns among infants and children, special susceptibility of infants and children to pesticide chemical residues, and the cumulative effects on infants and children of the residues and other substances with a common mechanism of toxicity. In addition, FFDCA section 408(b)(2)(C) provides that EPA shall apply an additional tenfold (10X) margin of safety for infants and children in the case of threshold effects to account for prenatal and postnatal toxicity and the completeness of the database on toxicity and exposure, unless EPA determines that a different margin of safety will be safe for infants and children. This additional margin of safety is commonly referred to as the Food Quality Protection Act Safety Factor. In applying this provision, EPA either retains the default value of 10X or uses a different additional safety factor when reliable data available to EPA support the choice of a different factor.

EPA concludes that, based upon the results of the toxicity data and other information considered and described in this document, there is a reasonable certainty that no harm will result to the U.S. population, including infants and children, from aggregate exposure to the residues of *B. amyloliquefaciens* strain D747. Such exposure includes all anticipated dietary and other exposures for which there is reliable information. With no threshold effects of concern, an additional margin of safety is not required for infants and children.

3. Occupational Exposure and Risk Characterization

Occupational exposure to *B. amyloliquefaciens* strain D747 is not expected to undue risks to pesticide handlers (mixer/loader/applicators), but EPA requires appropriate personal protective equipment and precautionary statements to mitigate any potential risks (e.g., respiratory allergenicity) to pesticide handlers from prolonged or repeated exposures. Handlers applying *B. amyloliquefaciens* strain D747 end-use products in agricultural settings must wear a long-sleeved shirt, long pants, socks, shoes, waterproof gloves, and a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95.

4. Human Health Risk Characterization

EPA considered human exposure to *B. amyloliquefaciens* strain D747 in light of the registration standards of FIFRA and the relevant FFDCA safety factors for allowable pesticide residues in food and animal feed commodities. EPA has determined that no unreasonable adverse effects to the U.S. population in general, and to infants and children in particular, will result when the proposed pesticide products containing *B. amyloliquefaciens* strain D747 as the active ingredient are used in accordance with the proposed labeling.

C. Environmental Assessment ([40 CFR § 158.2150](#))

The primary habitat of *Bacillus* species is soil, although they have also been isolated from a wide variety of other habitats. *B. amyloliquefaciens* has a wide-spread distribution, owed in part to its ability to form endospores that are resistant to greater variation in environmental conditions than the vegetative cells, should transfer to other climates occur. *B. amyloliquefaciens* has been isolated from internal tissues of healthy plants, and is known to promote plant growth. It is not recognized as a pathogen among *Bacillus* species (Logan and de Vos, 2009).

The data, literature citations, and data waiver rationale submitted by the applicant to support the pesticide products containing *B. amyloliquefaciens* strain D747 fulfilled the Tier I nontarget organism data requirements, and were sufficient for risk assessment purposes. Further testing of nontarget organisms at higher tier levels (i.e., Tiers II, III, and IV) is not required for the proposed uses. EPA performed an environmental risk assessment, and has determined that the proposed use of *B. amyloliquefaciens* strain D747 are not expected to cause unreasonable adverse effects to nontarget organisms.

For a comprehensive summary of the generic data requirements described in sections IV(C)(1) of this BRAD, refer to Table 8 in [Appendix A](#).

1. Ecological Exposure and Risk Characterization

a. Terrestrial Animals and Plants

The end-use products include a water-dispersible granular formulation and an aqueous suspension, proposed for application to agricultural crops, nurseries, ornamental plants, turfgrass, greenhouses, and shadehouses. Applications can be made to both foliar surfaces and soil, so exposure to nontarget organisms is possible. The proposed maximum application rates were used in the assessment of nontarget risk.

Data on the naturally occurring levels of *B. amyloliquefaciens* are not available. Many factors influence the environmental fate of microbial pesticides, and resulting population levels in the environment cannot be predicted. EPA expects that *B. amyloliquefaciens* strain D747 may survive after application if conditions are favorable, but the strain would not significantly add to the overall levels of *B. amyloliquefaciens* already present in the environment.

Birds (OCSPP Guideline 885.4050) and Mammals (OCSPP Guideline 885.4150):

A supplemental study showed that the acute oral LD₅₀ for *B. amyloliquefaciens* strain D747 is > 4.5 x 10¹¹ spores/kg BW or > 8 x 10⁹ spores/bird in Northern bobwhite (*Colinus virginianus*; MRID 48165712). Additionally, *B. amyloliquefaciens* is intentionally included in some

domestic avian food diets as a nutritional additive (e.g., European Food Safety Authority, 2010; Wizna et al., 2009), and it is not known to be pathogenic to animals (Logan and de Vos, 2009). An extensive literature search in several databases returned no reports of toxicity or pathogenicity of *B. amyloliquefaciens* in birds. Based on these lines of evidence, *B. amyloliquefaciens* strain D747 is not expected to pose risk of adverse effects in birds.

A study with laboratory rats (MRID 48165704) also showed that *B. amyloliquefaciens* strain D747 is not toxic, infective, or pathogenic at the maximum hazard dose of 1.0×10^8 CFU/animal. Therefore, adverse effects to wild mammals are also not expected as a result of the proposed applications of *B. amyloliquefaciens* strain D747.

Nontarget Insects (OCSPP Guideline 885.4340) and Honey Bees (OCSPP Guideline 885.4380): Studies with *Orius stricollis*, *Crysoperla carnea*, and *Phytoseiulus persimilis* were submitted for the nontarget insect data requirement (MRID 48165716). While no effects of *B. amyloliquefaciens* strain D747 were observed in these studies, they were not acceptable for use in the ecological risk assessment. Two honey bee studies were also submitted that showed no adverse effects of *B. amyloliquefaciens* D747 after 48 hours (MRID 48165717) and 17 days (no MRID currently assigned). These studies were rated Supplemental because they were not of sufficient duration (30 days); however, except in rare cases, bacteria that are pathogenic to insects typically produce toxins that kill the insect within a few days (Tanada and Kaya, 1993). Adverse effects resulting from exposure to *B. amyloliquefaciens* strain D747, therefore, would likely have been evident in the bee studies, especially after 17 days. Scientific rationale was submitted to show that adverse effects are not expected to nontarget insects (MRIDs 48621502 and 48621503). Entomopathogenic *B. species* (e.g., *B. thuringiensis*, *B. sphaericus*) have been extensively studied, and their pathobiology is well-known. *B. amyloliquefaciens* is not among the *B. species* recognized as frank pathogens to insects or other animals (Logan and de Vos, 2009). There are some accounts in the literature of effects of *B. subtilis* on insects; however, none of these were associated with *B. amyloliquefaciens* or *B. subtilis* var. *amyloliquefaciens*. Therefore, based on the studies and other information provided, *B. amyloliquefaciens* strain D747 is not expected to pose risk to honey bees and other nontarget insects as a result of its proposed applications.

Nontarget Plants (OCSPP Guideline 885.4300):

Studies with plants exposed to *B. amyloliquefaciens* strain D747 were unacceptable, based on several deficiencies (MRID 48165715). *B. amyloliquefaciens* is not taxonomically related to any known plant pathogens. As discussed previously, however, the microorganism has been isolated from tissues of healthy plants and is known as a plant growth-promoting rhizobacterium. It is, therefore, not expected to pose risk to nontarget plants as a result of the proposed applications.

b. Aquatic Animals and Plants

B. amyloliquefaciens strain D747 is not intended to be applied directly to water, but some of the applied product may reach aquatic habitats through runoff or spray drift. Spray drift at application is the primary mechanism by which the pesticide is expected to reach water. A spray drift analysis was included in the aquatic risk assessment to determine exposure, and further detail is provided in the environmental risk assessment for *B. amyloliquefaciens* strain D747.

Freshwater Fish (OCSPP 885.4200) Guideline and Invertebrates (OCSPP Guideline 885.4240): In a 30-day study with rainbow trout (*Oncorhynchus mykiss*), the LC₅₀ for *B. amyloliquefaciens*

strain D747 was 8.1×10^{10} CFU/L, and the NOEC based on sub-lethal effects was 1.44×10^{10} CFU/L. If the proposed maximum broadcast application rate (4 fluid ounces/1000 ft² or 2.55×10^6 CFU/cm²) is applied directly to a 1-ha body of water 15 cm deep (the EPA Standard Wetland), the resulting concentration would be 1.7×10^8 CFU/L. This would be the maximum possible aquatic concentration at this application rate, but is not a proposed use. The NOEC and LC₅₀ are approximately 85X and 476X higher than this concentration, respectively. Exposure in freshwater environments will be well below the concentrations that would produce adverse effects, and the proposed applications of *B. amyloliquefaciens* strain D747 are not expected to pose risks to freshwater fish.

A study with *Daphnia magna* provided an EC₅₀ based on mortality/immobility of 3.7×10^{10} CFU/L, and a NOEC for sub-lethal effects of 2.84×10^8 CFU/L. Based on the spray drift analysis, the NOEC would be approximately 20X the expected environmental concentration (EEC), and the EC₅₀ would be 218X the EEC; therefore, the proposed applications of *B. amyloliquefaciens* strain D747 are not expected to result in adverse effects to freshwater invertebrates.

Marine/Estuarine Fish (OCSPP 885.4280) and Invertebrates (OCSPP 885.4240):

Concentrations reaching marine or estuarine areas are expected to be less than those calculated above for freshwater animals, due to further dilution in deeper water. *B. amyloliquefaciens* strain D747 is not expected to reach marine or estuarine environments in significant concentrations, and risk to animals in these environments is not anticipated.

Aquatic Plants (OCSPP Guideline 885.4300):

B. amyloliquefaciens strain D747 is not related to known plant pathogens; therefore, adverse effects to aquatic plants are not anticipated.

2. Environmental Fate Data

The information provided for the proposed uses and application methods was sufficient to satisfy the Tier I nontarget organism data requirements and for nontarget organism risk assessment for *B. amyloliquefaciens* strain D747; further testing at higher tier levels (i.e., Tiers II, III, and IV) is not required.

3. Threatened and Endangered Species Assessment

Since EPA has determined that no effects are anticipated for any nontarget species exposed to *B. amyloliquefaciens* strain D747 as a result of the proposed applications, effects to federally listed threatened and endangered species and their designated critical habitats are also not expected. Therefore, a "No Effect" determination is made for direct and indirect effects to listed species and their designated critical habitats resulting from the proposed uses of *B. amyloliquefaciens* strain D747.

V. ENVIRONMENTAL JUSTICE

EPA seeks to achieve environmental justice—the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income—with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups,

should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal environmental programs and policies. Meaningful involvement means that (1) potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health; (2) the public's contribution can influence the regulatory agency's decision; (3) the concerns of all participants involved will be considered in the decision-making process; and (4) the decision-makers seek out and facilitate the involvement of those potentially affected. EPA has this goal for all communities and persons across the United States.

To help address potential environmental justice issues, EPA seeks information on any groups or segments of the population who, as a result their location, cultural practices, or other factors, may have atypical, unusually high exposure to *B. amyloliquefaciens* strain D747, compared to the general population. Please comment if you are aware of any subpopulations that may have atypical, unusually high exposure compared to the general population.

For additional information regarding environmental justice issues, please visit EPA's web site at <http://www.epa.gov/compliance/environmentaljustice/index.html>.

VI. RISK MANAGEMENT DECISION

Section 3(c)(5) of FIFRA permits for the registration of a pesticide provided that all the following determinations are made:

- (1) Its composition is such as to warrant the proposed claims for it;
- (2) Its labeling and other material required to be submitted comply with the requirements of FIFRA;
- (3) It will perform its intended function without unreasonable adverse effects on the environment; AND
- (4) When used in accordance with widespread and commonly recognized practice, it will not generally cause unreasonable adverse effects on the environment.

To satisfy criterion 1, the *B. amyloliquefaciens* strain D747 pesticide products have well-known properties. EPA has no knowledge that would contradict the claims made for these products, the CX-9030 and CX-9032 EP labels, and we have concluded that such products are not expected to cause unreasonable adverse effects on the environment when used according to the label instructions. Criterion 2 is satisfied by the current product labels, as well as the data and information presented in this document. It is believed that the *B. amyloliquefaciens* strain D747 pesticide products will not cause any unreasonable adverse effects on the environment, and CX-9030 and CX-9032 (end-use pesticide product), in particular, are likely to provide protection against fungal and bacterial pests as claimed, satisfying criterion 3. Criterion 4 is satisfied in that the *B. amyloliquefaciens* strain D747 pesticide products are not expected to cause unreasonable adverse effects when used according to label instructions. Therefore the end-use products, CX-9030 and CX-9032, containing *B. amyloliquefaciens* strain D747 as a new active ingredient, are eligible for registration under FIFRA section 3(c)(5) for the labeled uses. Should uses that are more extensive be proposed in the future (e.g., aquatic uses), EPA will likely require that additional data be submitted.

VII. ACTIONS REQUIRED BY THE REGISTRANT

A. Final Printed Labeling

Before releasing pesticide products containing *B. amyloliquefaciens* strain D747 for shipment, the registrant is required to provide appropriate final printed labeling to EPA prior to shipment of product.

B. Terms of Registration

As a term of the registration CX-9032 EP, the registrant must submit the following data within one year of this product's registration:

- (1) Storage Stability (OCSPP Guideline 830.6317) and Corrosion Characteristics (OCSPP Guideline 830.6320): The results of a one-year storage stability and corrosion characteristics study.

C. Reporting of Adverse Effects and Hypersensitivity Incidents

Notwithstanding the information stated previously, it should be clearly understood that certain specific data are required to be reported to EPA as a requirement for maintaining the federal registration for a pesticide product. A brief summary of these types of data are described below.

Reports of all incidents of adverse effects to the environment must be submitted to EPA under the provisions stated in FIFRA section 6(a)(2). Additionally, all incidents of hypersensitivity (including both suspected and confirmed incidents) must be reported to EPA under the provisions of 40 CFR § 158.2140(d).

VIII. GLOSSARY OF ACRONYMS AND ABBREVIATIONS

ASAE	American Society of Agricultural Engineers
BPPD	Biopesticides and Pollution Prevention Division
BRAD	Biopesticides Registration Action Document
CFR	Code of Federal Regulations
CFU	colony-forming unit(s)
cfu/kg	colony-forming units per kilogram
cfu/mL	colony-forming units per milliliter
cP	centipoise
EDSP	Endocrine Disruptor Screening Program
EP	end-use product
EPA	Environmental Protection Agency (the "Agency")
FFDCA	Federal Food, Drug, and Cosmetic Act
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FQPA	Food Quality Protection Act
FR	Federal Register
g/mL	gram per milliliter
LC ₅₀	median lethal concentration. A statistically derived concentration of a substance that can be expected to cause death in 50% of test animals. It is

	usually expressed as the weight of substance per weight or volume of water, air, or feed (e.g., mg/L, mg/kg, or ppm).
LD ₅₀	median lethal dose. A statistically derived single dose that can be expected to cause death in 50% of the test animals when administered by the route indicated (oral, dermal, or inhalation). It is expressed as a weight of substance per unit weight of animal (e.g., mg/kg).
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MP	manufacturing-use product
mPa·s	milliPascal-second, term used as the unit of dynamic viscosity.
MRID No.	Master Record Identification Number
NIOSH	National Institute for Occupational Safety and Health
NRRL	Northern Regional Research Laboratory
OCSP	Office of Chemical Safety and Pollution Prevention
OPP	Office of Pesticide Programs
PC Code	Pesticide Chemical Code
PP	Pesticide Petition
PPE	personal protective equipment
ppm	parts per million
TGAI	technical grade of the active ingredient
U.S.	United States

IX. BIBLIOGRAPHY

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**APPENDIX A. MICROBIAL PESTICIDES DATA REQUIREMENTS
(40 CFR PART 158 – SUBPART V)**

**TABLE 1. Product Analysis Data Requirements for the End-Use Product (EP), CX-9030
(40 CFR § 158.2120)**

OCSPP Guideline Number	Data Requirement	Results	MRID No.
885.1100	Product Identity	Submitted data fulfill the requirement for product identity. CX-9030 contains 25.0% by weight <i>Bacillus amyloliquefaciens</i> strain D747 (minimum of 5×10^{10} CFU/g)	481655-01 CSF dated 10/18/2011
885.1200	Manufacturing Process	Submitted data fulfill the requirement for manufacturing process.	481655-01
Not applicable	Deposition of a Sample in a Nationally Recognized Culture Collection	Submitted data fulfill the requirement for deposition. Culture on deposit under Accession Number NRRL B-50405.	481655-01
885.1300	Discussion of Formation of Unintentional Ingredients	Submitted data fulfill the requirement for discussion of formation of unintentional ingredients.	481655-01
885.1400	Analysis of Samples	Submitted data fulfill the requirement for analysis of samples.	481655-01
885.1500	Certification of Limits	Limits listed on the confidential statement of formula are adequate/acceptable	CSF dated 10/18/2011
Additional Studies			
830.1800	Enforcement Analytical Method	Submitted data fulfill the requirement for an enforcement analytical method	481655-01

**TABLE 2. Product Analysis Data Requirements for the End-Use Product (EP), CX-9032
(40 CFR § 158.2120)**

OCSPP Guideline Number	Data Requirement	Results	MRID No.
885.1100	Product Identity	Submitted data fulfill the requirement for product identity. CX-9030 contains 98.95% by weight <i>Bacillus amyloliquefaciens</i> strain D747 (minimum of 1×10^{10} CFU/g)	481655-01 CSF dated 10/18/2011
885.1200	Manufacturing Process	Submitted data fulfill the requirement for manufacturing process.	481657-01 481655-01
Not applicable	Deposition of a Sample in a Nationally Recognized Culture Collection	Submitted data fulfill the requirement for deposition. Culture on deposit under Accession Number NRRL B-50405.	481657-01 481655-01
885.1300	Discussion of Formation of Unintentional Ingredients	Submitted data fulfill the requirement for discussion of formation of unintentional ingredients.	481657-01 481655-01
885.1400	Analysis of Samples	Submitted data fulfill the requirement for analysis of samples.	481655-01 481657-01
885.1500	Certification of Limits	Limits listed on the confidential statement of formula are adequate/acceptable	CSF dated 10/18/2011
Additional Studies			
830.1800	Enforcement Analytical Method	Submitted data fulfill the requirement for an enforcement analytical method	481655-01

TABLE 3. Physical and Chemical Characteristics for the Technical Grade of the Active Ingredient (TGAI) *Bacillus amyloliquefaciens* strain strain D747 / CX-9030 (EP). (40 CFR § 158.2120)

OCSPP Guideline Number	Data Requirement	Results		MRID No.
		TGAI	CX-9030 (EP)	
830.6302	Color	Beige	Not Applicable	481657-02
830.6303	Physical State	Fine powder	Not applicable	481657-02
830.6304	Odor	Yeast odor	Not applicable	481657-02
830.6313	Stability to Normal and Elevated Temperatures, Metals, and Metal Ions	Spores inactivated at 54°C	Not applicable	481657-02
830.6314	Oxidation/Reduction: Chemical Incompatibility	Not applicable, the product does not contain oxidizing or reducing agents		481657-02
830.6315	Flammability	Not applicable, the product does not contain flammable ingredients		481657-02
830.6316	Explodability	Not applicable, the product does not contain explosive ingredients		481657-02
830.6317	Storage Stability	Stable up to one year at 25°C without loss of viability		481657-02 481657-03
830.6319	Miscibility	Not applicable, the product is not an emulsifiable liquid. (refer to test note #2 of 40 CFR § 158.2120(d)).		481657-02
830.6320	Corrosion Characteristics	Not applicable, the product is a powder.		481657-02
830.6321e	Dielectric Breakdown Voltage	Not applicable, the product is not for use around electrical equipment		481657-02
830.7000	pH	6.5 – 7.0 (1% w/w)	7.5- 8.0	481657-02
830.7100	Viscosity	Not applicable, the product is a powder.	Not Applicable. CX-9030 is not a liquid.	481657-02
830.7300	Density/Relative Density/Bulk Density (Specific Gravity)	0.307- 0.375 g/ml	0.60-.0.78 g/ cm ³	481657-02

TABLE 4. Physical and Chemical Characteristics for CX-9032 (EP). (40 CFR § 158.2120)

OCSPP Guideline Number	Data Requirement	Results		MRID No.
		TGAI	CX-9030 (EP)	
830.6302	Color	Beige	Light brown	481655-02
830.6303	Physical State	Fine powder	Liquid	481655-02
830.6304	Odor	Yeast odor	Yeast odor	481655-02
830.6313	Stability to Normal & Elevated Temperatures, Metals, & Metal Ions	Spores inactivated at 54°C..		481655-02
830.6317	Storage Stability	Stable up to one year at 25°C without loss of viability	Stable up to 78 days at 25°C without loss of viability. As a term of the registration, EPA will require the results of a one-year storage stability and corrosion characteristics study be submitted within one year.	481655-02
830.6319	Miscibility	Not applicable; product is not an emulsifiable liquid. (refer to test note #2 of 40 CFR § 158.2120(d)).		481655-02
830.6320	Corrosion Characteristics	Not applicable; product is a powder.	None evident to polyethylene packaging after 78 days. As a term of the CX-9032 (EP) registration, EPA will require submission of the results of a one-year storage stability & corrosion characteristics within one year.	481655-02
830.7000	pH	6.5 – 7.0 (1% w/w)	4.2 - 4.3 (1% w/w).	481655-02
830.7100	Viscosity	Not applicable, the product is a powder.	4.6 - 16.0 milliPascal-second (mPa s) at 25°C	481655-02
830.7300	Density/Relative Density/Bulk Density (Specific Gravity)	0.307- 0.375 g/ml	1.02 – 1.03 g/mL	481655-02

TABLE 5. Toxicology Data Requirements for the Technical Grade of the Active Ingredient (TGAI) (40 CFR § 158.2140)			
OCSPP Guideline Number	Data Requirement	Results	MRID No.
		TGAI	
Tier I			
885.3050	Acute Oral Toxicity/Pathogenicity	No evidence of infectivity, pathogenicity or toxicity was found from oral administration of 1.0x10 ⁸ CFU <i>Bacillus amyloliquefaciens</i> strain D747 to rats. Clearance from fecal material occurred by day 14 and no viable organisms were recovered from blood or any other organ or tissue. Classification: Acceptable	481657-04
885.3150	Acute Pulmonary Toxicity/Pathogenicity	No evidence of infectivity, pathogenicity or toxicity was found from intratracheal administration of 1.0x10 ⁷ spores <i>B. amyloliquefaciens</i> strain D747 to rats. Classification: Acceptable	481657-06
885.3200	Acute Injection Toxicity/Pathogenicity (Intravenous)	Not toxic, infective, and/or pathogenic to rats when dosed intravenously at 1.0x10 ⁷ spores per animal. Classification: Acceptable	481657-05
885.3400	Hypersensitivity Incidents	No hypersensitivity incidents, including immediate-type or delayed-type reactions of humans and domestic animals that occurred during research, development, or testing of the TGAI/MP, were reported. Future hypersensitivity incidents must be reported (For reporting format: OCSPP Guideline 885.3400).	479450-23
885.3500	Cell Culture	Not required. <i>B. amyloliquefaciens</i> strain D747 is not a virus (Test note #4 of 40 CFR § 158.2140(d)).	
Tiers II and III			
Not required for <i>Bacillus amyloliquefaciens</i> strain D747 based on the lack of acute toxicity/pathogenicity in the Tier I studies.			

**TABLE 6. Toxicology Data Requirements for the End-Use Product (EP), CX-9030
(40 CFR § 158.2140)**

OCSPP Guideline Number	Data Requirement	Results	MRID No.
885.3400	Hypersensitivity Incidents	No hypersensitivity incidents, including immediate-type or delayed-type reactions of humans and domestic animals that occurred during research, development, or testing of the EP, were reported by the applicant. Any future hypersensitivity incidents must be reported per OCSPP Guideline 885.3400.	
870.1100	Acute Oral Toxicity	Oral LD ₅₀ > 5000 mg/Kg Classification: Acceptable Toxicity Category IV	481657-07
870.1200	Acute Dermal Toxicity	Dermal LD ₅₀ > 5050 mg/Kg Classification: Acceptable TOXICITY CATEGORY IV	481657-08
870.1300	Acute Inhalation Toxicity	Inhalation LC ₅₀ > 2.18 mg/L Classification: Acceptable TOXICITY CATEGORY IV	481657-09
870.2400	Acute Eye Irritation	The maximum average irritation score of 18.3 obtained 1 hour after treatment declined to 17.33 after 24 hours, 2 after 48 hours and 0 after 72 hours following ocular administration of 0.1 mL <i>B. amyloliquefaciens</i> strain D747 to New Zealand White rabbits in a 72 hour observation period. Classification: Acceptable TOXICITY CATEGORY III	481657-10
870.2500	Primary Dermal Irritation	No evidence of irritation was found from dermal administration of 500 mg <i>B. amyloliquefaciens</i> strain D747 CX-9030 to rabbits during the 4 hour exposure and 72 observation periods. The dermal irritation score for <i>B. amyloliquefaciens</i> strain D747 CX-9030 was 0.00. Classification: Acceptable TOXICITY CATEGORY IV	481657-11

**TABLE 7. Toxicology Data Requirements for the End-Use Product (EP), CX-9032
(40 CFR § 158.2140)**

OCSPP Guideline Number	Data Requirement	Results	MRID No.
885.3400	Hypersensitivity Incidents	No hypersensitivity incidents including immediate-type or delayed-type reactions of humans and domestic animals that occurred during research, development, or testing of the EP were observed or reported. All hypersensitivity incidents must be reported per OCSPP Guideline 885.3400.	
870.1100	Acute Oral Toxicity	Waiver request submitted. Requirement satisfied by submitted MP data. Oral exposure to the MP showed no adverse effects including infectivity, pathogenicity and toxicity up to the limit dose. Inerts are exempt from tolerance. No additional oral toxicity is expected from inerts. Classification: Acceptable	481655-04
870.1200	Acute Dermal Toxicity	Waiver request submitted. Requirement adequately addressed by CX-9030 EP data as well as, dermal irritation testing on CX-9032-EP. Dermal toxicity and irritation testing for the CX-9030 EP and dermal irritation data on CX-9032 EP showed no adverse effects up to the limit doses. No additional dermal toxicity is expected from inerts. Classification: Acceptable	481655-04 481655-06 481655-11 481657-08
870.1300	Acute Inhalation Toxicity	Waiver request submitted. Pulmonary exposure to the MP showed no adverse effects, including infectivity, pathogenicity or toxicity though slight toxicity lasting 2 days from a 4-hour aerosol inhalation administration of 2.18 mg/L, where inert ingredients were also present, was noted in a CX-9030 EP study. No additional toxicity is expected from this EP's inert ingredients. Classification: Acceptable	481655-04 481657-06 481657-09
870.2400	Acute Eye Irritation	The maximum average irritation score of 0.667 at 1 hour after treatment declined to 0 after 24 hours following ocular administration of 0.1 mL <i>B. amyloliquefaciens</i> strain D747 CX-9032 to New Zealand White rabbits (72-hour observation period). Classification: Acceptable TOXICITY CATEGORY IV	481655-05

**TABLE 7. Toxicology Data Requirements for the End-Use Product (EP), CX-9032
(40 CFR § 158.2140)**

OCSPP Guideline Number	Data Requirement	Results	MRID No.
870.2500	Primary Dermal Irritation	No irritation occurred from dermal administration of 0.5 mL undiluted <i>B. amyloliquefaciens</i> strain D747 CX-9032 to shaved skin of rabbits during the 4 hour exposure and 72 observation periods. The dermal irritation score for <i>B. amyloliquefaciens</i> strain D747 CX-9032 was 0.00. Classification: Acceptable TOXICITY CATEGORY IV	481655-06

TABLE 8. Nontarget Organism Toxicity and Environmental Fate Data Requirements for the Technical Grade of the Active Ingredient (TGA), *Bacillus amyloliquefaciens* strain D747 (40 CFR § 158.2150)

OCSPP Guideline Number	Data Requirement	Results	MRID No.
Tier I			
885.4050	Avian Oral Toxicity	A study showed that <i>B. amyloliquefaciens</i> D747 is not toxic to birds at 8.9×10^9 spores/bird. Classification: Supplemental Scientific rationale is sufficient to conclude that <i>B. amyloliquefaciens</i> D747 is not expected to pose a hazard to birds. Classification: Acceptable	48165712 48621501
885.4100	Avian Inhalation Toxicity/Pathogenicity	Not required. <i>B. amyloliquefaciens</i> D747 is not considered to be pathogenic to birds	
885.4150	Wild Mammal Toxicity/Pathogenicity	Tests required by 40 CFR § 158.2140 are adequate/ appropriate for assessment of hazards to wild mammals. <i>B. amyloliquefaciens</i> D747 was not infective, toxic or pathogenic to laboratory rats 1.0×10^8 CFU/animal	48165704
885.4200	Freshwater Fish Toxicity/Pathogenicity	A 30-day study shows that the LC_{50} to rainbow trout is 8×10^{10} CFU/L. The NOEC for sublethal effects is 1.44×10^{10} CFU/L. Classification: Acceptable	48165713
885.4240	Freshwater Invertebrate Toxicity/Pathogenicity	A 21-day study shows that the EC_{50} to <i>Daphnia magna</i> based on mortality is 3.7×10^{10} CFU/L. The NOEC for sublethal effects is 2.84×10^8 CFU/L. Classification: Acceptable	48165714
885.4280	Estuarine/Marine Fish and Invertebrate Testing	Not required. <i>B. amyloliquefaciens</i> D747 is not to be applied directly to water and is not expected to reach estuarine or marine environments in significant quantities.	
885.4300	Nontarget Plant Testing	A study submitted was determined to be unacceptable ; however, testing is not required because <i>B. amyloliquefaciens</i> is not related to known plant pathogens	48165715

TABLE 8. Nontarget Organism Toxicity and Environmental Fate Data Requirements for the Technical Grade of the Active Ingredient (TGAI), *Bacillus amyloliquefaciens* strain D747 (40 CFR § 158.2150)

OCSPP Guideline Number	Data Requirement	Results	MRID No.
885.4340	Nontarget Insect Testing	Studies with three species of arthropods were determined to be unacceptable . Additional scientific rationale was submitted to show that <i>B. amyloliquefaciens</i> is not expected to be toxic or pathogenic to nontarget insects. Classification: Acceptable	48165716 48621502
885.4380	Honey Bee Testing	Two studies showed that <i>B. amyloliquefaciens</i> D747 is not toxic to honey bees. Classification: Supplemental Additional rationale was sufficient to show that pathogenicity to honey bees is not expected as a result of exposure to <i>B. amyloliquefaciens</i> D747. Classification: Acceptable	48165717 48621503
Tiers II, III, and IV			
Not required for <i>Bacillus amyloliquefaciens</i> strain D747 based on the current uses and application methods.			

APPENDIX B. PESTICIDE PRODUCTS

TABLE 9. Table Title?

EPA Registration Number	Registration Name	Percentage Active Ingredient	Formulation Type	Use Site(s)	Method(s) of Application	Application Rate	Target Pest
70051-107	CX-9032	98.35%	End Use – Aqueous Suspension	Various agricultural and greenhouse crops (e.g., vegetables, tree fruits, berries, grapes and tropical fruit, tree nuts, herbs and spices, coffee, tobacco, hops, forestry seedlings ornamentals, and turf)	Tractor mounted boom, airblast, hose-end, backpack and other pressurized sprayers; foggers or mist blowers; water wheel and other drench applicators; soil injection; aerial; and chemigation with drip or sprinkler irrigation and cutting or root dip	Rate listed on label varies depending on application method from 0.5 pints /acre to 6 quarts/acre	Various fungal and bacterial pests listed on the label including: <i>Alternaria</i> , <i>Botrytis cinerea</i> <i>Didymella bryoniae</i> <i>Phoma cucurbitacearum</i> <i>Erisphe</i> , <i>Fusarium</i> , <i>Macrophomina phaseoli</i> <i>Monosporascus cannonballus</i> <i>Peronospora</i> , <i>Phytophthora</i> <i>Pseudomonas syringae</i> pv. <i>tomato</i> <i>Pseudoperonospora</i> spp. <i>Puccinia</i> spp. <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Sphaerotheca</i> spp. <i>Verticillium</i> , spp. <i>Xanthomonas</i> spp.
70051-108	CX-9030	25.0%	Water Dispersible Granule	Various agricultural and greenhouse crops (e.g., vegetables, ornamentals, and turf)	Tractor mounted boom, airblast, hose-end, backpack and other pressurized sprayers; foggers or mist blowers; water wheel and other drench applicators; shank or other soil injection equipment; aerial; and chemigation with drip or sprinkler irrigation and cutting or root dip	0.25 –3 pounds per acre	Various fungal and bacterial pests listed on the label including: <i>Alternaria</i> , <i>Botrytis cinerea</i> <i>Didymella bryoniae</i> <i>Phoma cucurbitacearum</i> <i>Erisphe</i> <i>Fusarium</i> , <i>Macrophomina phaseoli</i> <i>Monosporascus cannonballus</i> <i>Peronospora</i> , <i>Phytophthora</i> <i>Pseudomonas syringae</i> pv. <i>tomato</i> <i>Pseudoperonospora</i> spp. <i>Puccinia</i> spp. <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Sphaerotheca</i> spp. <i>Verticillium</i> , spp., <i>Xanthomonas</i> spp.

EPA National Organic Program Labeling Request Checklist

Reviewer Name: Chris Pfeifer

RAL: Susanne Cerrelli

Product Name: CX 9032 (EPA Reg. No. 70051-RNT (107))

Completion Date: 11/16/11

Determination: Permitted

Receipt Date: 9/30/11

#	Check list Item	Yes	No
1	Active Ingredients - Are all of the active ingredient(s) " <i>Allowed</i> " on the National List ?	Y	
2	Active Ingredients History - Is the active ingredient on the BPPD list of previous NOP approvals (f:/USER/SHARE/BPPD/Organic/Copy of NOP/allowableble.pdf or ALLOWED.xls)?	Y	
3	Inert Ingredients - Are all of the inert(s) found on the August 2004 EPA list 4A and 4B ?	Y	
4	Inert Ingredients - Have any inert(s) been recently revoked (Revoked List 4 Inerts)?		N
5	Use Sites - Are all the product's use sites within the scope of the designated use patterns cited in the <i>National List</i> ?	Y	
6	Language - Is the requested label language allowable. (Acceptable language includes: " <i>For Use in Organic Production</i> "; " <i>For Organic Production</i> "; " <i>For Use in Organic Gardening</i> "; " <i>For Organic Gardening</i> "; " <i>OMRI Listed</i> "; the OMRI logo; and the three leaf EPA NOP Logo .)	Y*	
7	OMRI Certification - Does the application have a current OMRI certificate?	*	
8	<p>Comments -</p> <p>#1) The ai is approved for organic use. The source of ai is not GM. There are no intentionally added ingredients in the ai source that are not consumed or accounted for; and none of the impurities are of toxicological significance.</p> <p>#2) The inert ingredients are all List 4 and NOP compliant. Acceptable MSDS were provided for all inert ingredients; and the composition of the mixtures were validated in OPPIN.</p> <p>#3) The use sites for the agricultural sublabel are all pre-harvest agricultural, and are acceptable per the Organic Production Standard. The use sites for the home garden sublabel are all plant-based and are acceptable per the Organic Gardening Standard.</p> <p>#4) The label claims "For Organic Production" and "OMRI Listed" are appropriate for the use pattern on the agricultural sublabel. The label claims "For Organic gardening" and "OMRI Listed" are appropriate for the use pattern on the residential use sublabel.</p> <p>#5) Because this product is presently unregistered, the product cannot receive an OMRI certificate. It is a reasonable expectation, however, that the registrant will receive a certificate upon application. As such, the registrant can add the "OMRI Listed" claim to the label with the following terms:</p> <p>a) The registrant must add a parenthetical statement to the OMRI claim on the draft label indicating that it is a placeholder. The self-evident expression "(placeholder)" is adequate.</p> <p>b) The Registration Notice must create a term which requires submission of the OMRI certificate to the Agency once it has been received.</p> <p>Permit NOP labeling of this product.</p>		

This review contains **CONFIDENTIAL BUSINESS INFORMATION (CBI)**. Do not release this document to the registrant if it contains confidential information on proprietary mixes.

Program Links - National Organic Program ([AMS - NOP](#)); PR Notice 2003-1 ([PR Notice 2003-1](#))

BPPD Guidance Document - Other Items May be Required



FW: CBI Statement

Dively, Chris

to:

Susanne Cerrelli

10/25/2011 03:23 PM

Cc:

"Dively, Chris"

Hide Details

From: "Dively, Chris" <cdively@certisusa.com>

To: Susanne Cerrelli/DC/USEPA/US@EPA

Cc: "Dively, Chris" <cdively@certisusa.com>

History: This message has been forwarded.

Dear Susanne,

On behalf of Certis USA, I would like to amend the CBI Statement in the previous email.

Information submitted to support the registration applications and tolerance exemption petition for CX-9030 and CX-9032, that does not have a Confidentiality Statement in the data volume (Per PR Notice 86-5) is not considered as Confidential Business Information per FIFRA and Part 158 Guidelines. Data volumes that include CBI are manufacturing process data, formation of unintentional ingredients, Certification of Ingredients –CSFs, and

Analyses of Samples.

Sincerely,

Chris Dively

Director of Regulatory Affairs

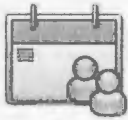
From: Dively, Chris

Sent: Tuesday, October 25, 2011 2:59 PM

To: Dively, Chris

Subject: FW: CBI Statement

From: Dively, Chris



**Bacillus amyloliquefaciens strain D747 Team meeting
Calendar Entry**

**Tue 11/01/2011 11:00 AM - 11:30
AM**

Rooms: BPPD Conference Room - S-8771/Potomac Yard One@EPA

Required:	Joel Gagliardi/DC/USEPA/US@EPA, John Kough/DC/USEPA/US@EPA, Shannon Borges/DC/USEPA/US@EPA, Sheryl Reilly/DC/USEPA/US@EPA
Optional:	Alan Reynolds/DC/USEPA/US@EPA

Description

Goal- To clarify any remaining issues and update team on status. Please if anyone has specific questions for D747 or Agenda items, please let me know.

Sheryl Reilly has the current BRAD.

The only outstanding data identified in the BRAD that will be required is:

As a term of the registration CX-9032 EP , the registrant must submit the following data within one year of this product's registration:

(1) Storage Stability (OCSPP Guideline 830.6317) and Corrosion Characteristics (OCSPP Guideline 830.6320): The results of a one-year storage stability and corrosion characteristics study.

Right now I am waiting for Dively to fix labels, again. She fixed the CSFS and ingredient statement on the labels. She just didn't address other items I need. If they don't remove one organic claim they will not get NOP claim approved for one of their labels, and I may be forced to issue registration with label requirement comments on the labels. Chris Pfeifer is waiting for label amendment before he processes further.

The tolerance exemption FR Notice is with Keith Matthews. It has not gone to OGC yet.

Shannon- can you email me the phone number I should use to contact you offsite?

-THANKS!!

EPA National Organic Program Labeling Request Checklist

Reviewer Name: Chris Pfeifer

RAL: Susanne Cerrelli

Product Name: CX 9032 (EPA Reg. No. 70051-RNT (107))

Completion Date: 10/13/11

Determination: Not Permitted

Receipt Date: 9/30/11

#	Check list Item	Yes	No
1	Active Ingredients - Are all of the active ingredient(s) " <i>Allowed</i> " on the National List ?	Y	
2	Active Ingredients History - Is the active ingredient on the BPPD list of previous NOP approvals (f:/USER/SHARE/BPPD/Organic/Copy of NOP/allowableble.pdf or ALLOWED.xls)?	Y	
3	Inert Ingredients - Are all of the inert(s) found on the August 2004 EPA list 4A and 4B ?	Y	
4	Inert Ingredients - Have any inert(s) been recently revoked (Revoked List 4 Inerts)?		N
5	Use Sites - Are all the product's use sites within the scope of the designated use patterns cited in the <i>National List</i> ?	Y	
6	Language - Is the requested label language allowable. (Acceptable language includes: " <i>For Use in Organic Production</i> "; " <i>For Organic Production</i> "; " <i>For Use in Organic Gardening</i> "; " <i>For Organic Gardening</i> "; " <i>OMRI Listed</i> "; the OMRI logo; and the three leaf EPA NOP Logo .)	Y*	
7	OMRI Certification - Does the application have a current OMRI certificate?	*	
8	<p>Comments -</p> <p>#1) The ai is approved for organic use. The source of ai is not GM. There are no intentionally added ingredients in the ai source that are not consumed or accounted for; and none of the impurities are of toxicological significance.</p> <p>#2) The inert ingredients are all List 4 and NOP compliant. Acceptable MSDS were provided for all inert ingredients; and the composition of the mixtures were validated in OPPIN.</p> <p>#3) The use sites for the agricultural sublabel are all pre-harvest agricultural, and are acceptable per the Organic Production Standard. The use sites for the home garden sublabel are all plant-based and are acceptable per the Organic Gardening Standard.</p> <p>#4) The label claims "For Organic Production" and "OMRI Listed" are appropriate for the use pattern on the agricultural sublabel. The label claims "For Organic gardening" and "OMRI Listed" are appropriate for the use pattern on the residential use sublabel.</p> <p>#5) Because this product is presently unregistered, the product cannot receive an OMRI certificate. It is a reasonable expectation, however, that the registrant will receive a certificate upon application. As such, the registrant can add the "OMRI Listed" claim to the label with the following terms:</p> <p>a) The registrant must add a parenthetical statement to the OMRI claim on the draft label indicating that it is a placeholder. The self-evident expression "(placeholder)" is adequate.</p> <p>b) The Registration Notice must create a term which requires submission of the OMRI certificate to the Agency once it has been received.</p> <p>#6) The last sentence in the 'General Information' section referencing the NOP (p.3 of 17) must be removed because it is not in accord with the allowable language laid out in PR Notice 2003-1.</p> <p>#7) The OMRI claims laid out on p.14 of 17 must be qualified as 'placeholders.'</p> <p>Do Not Permit NOP labeling of this product.</p>		

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Program Links - National Organic Program ([AMS - NOP](#)); PR Notice 2003-1 ([PR Notice 2003-1](#))

BPPD Guidance Document - Other Items May be Required

Certis
USA, LLC
Company Number: 70051

Bacillus amyloliquefaciens strain D-747

Response to BPPD Health Effects and Product Chemistry Data Review for 70051-RNT and
70051-RNI; Pesticide Petition OF7760

OCSPP Guidelines: 885.1100, 885.1200, 885.1300, 885.1400, 830.1800, 830.6302, 830.7950

Potential Allergenicity

The protein source used in the fermentation process of B.amyloliquefaciens a. i. (animal, plant,
marine) is [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Clarification of the test material used in the acute toxicity studies

The test material used in the Acute Eye Irritation study and Acute Dermal Irritation study was
the end use formulation, which is the formulation listed on the CSF for CX-9032. The test
material description of [REDACTED]

[REDACTED] Please refer to the Certificate of Analysis for further clarification.

MASTER LABEL
SUBLABEL A: Agricultural Use

place holder for OMRI Seal

CX-9032

Aqueous Suspension Biofungicide/Bactericide

FOR ORGANIC PRODUCTION**Active Ingredient:***Bacillus amyloliquefaciens* strain D747* 99.35%**Other Ingredients** 65%**Total** 100.00%*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliterEPA Reg. No. 70051- *KIT*

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS:

Lot No.:

KEEP OUT OF REACH OF CHILDREN**CAUTION****FIRST AID**

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product label with you when calling a poison control center or doctor.

Hot Line No.: 1-800-255-3924

PRECAUTIONARY STATEMENTS**HAZARDS TO HUMANS & DOMESTIC ANIMALS****CAUTION**

Harmful if absorbed through skin. Harmful if inhaled. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- NIOSH approved respirator with any N, P, R or HE filter

Follow manufacturer's instructions for cleaning and maintaining PPE. If no instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides, the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticides get inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is: cover-alls, waterproof gloves, shoes plus socks.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of onsite or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 kills pathogenic organisms on foliage and other plant parts by producing antibiotic compounds (iturins) which disrupt pathogen cell wall production. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

CX-9032 can be applied alone or in combination and/or rotation with chemical fungicides as a tool for integrated disease management in agricultural crops, ornamental and nursery plants, and turfgrass. CX-9032 offers a valuable tool for management of resistance to chemical fungicides through its multiple and unique modes of action.

CX-9032 is exempt from the requirement for residue tolerance and therefore can be applied up to and including the day of harvest.

CX-9032 complies with the USDA National Organic Program (NOP) and is listed by the Organic Materials Review Institute (OMRI) for use in organic production.

MIXING AND HANDLING INSTRUCTIONS

Mix the required amount of CX-9032 in water with sufficient agitation to maintain a uniform suspension in the spray or mixing tank. Tank should be cleaned prior to use. Do not use highly alkaline or highly acidic water to mix sprays. Use a buffering agent if necessary to maintain neutrality (pH 6 to 8) of water in the tank. Maintain agitation during application. Apply immediately after mixing; do not allow spray mix to stand overnight.

CX-9032 can be mixed and used with other agricultural chemicals for which such mixing is permitted by the product labels, in accordance with the most restrictive of those label limitations and precautions. If such a mixture is planned, a compatibility "jar test" should first be conducted by mixing the correct proportions of CX-9032 and these products in a small volume of water.

APPLICATION METHODS

Ground: CX-9032 can be applied in most commonly-used ground application equipment, such as (but not limited to): tractor-mounted boom, airblast, high clearance, hose-end, backpack, and other pressurized sprayers; hose-end or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method.

Aerial: CX-9032 can be applied by fixed or rotary winged aircraft in a minimum of 3 gallons of water per acre. Standard precautions should be taken to minimize spray drift.

Chemigation: CX-9032 can be applied through drip (trickle) and sprinkler type irrigation equipment. Refer to the section entitled "Chemigation Instructions" for detailed instructions.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the Agency responsible for pesticide regulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

Agricultural crops

CROPS (See footnote for additional information)	
Vegetables and melons, including but not limited to:	
Brassica vegetables such as broccoli, cabbage, cauliflower, Brussels sprouts, kohlrabi, and other cole crops.	Pin rot complex (<i>Alternaria/Xanthomonas</i>)* Leaf spots (<i>Alternaria</i> spp., <i>Xanthomonas</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe polygoni</i>) “Damping off,” seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for “Soil application”).
Bulb vegetables such as onions, garlic, shallots, and others.	<i>Botrytis</i> spp. (neck rot, leaf blight) Purple blotch (<i>Alternaria</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Rust (<i>Puccinia pori</i>)* “Damping off,” seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for “Soil application”).
Cucurbits such as cucumbers, squash (all types), cantaloupes, muskmelons, watermelons, and other melons.	Powdery mildew (<i>Erysiphe</i> and <i>Sphaerotheca</i> spp.) Downy mildew (<i>Pseudoperonospora</i> spp.) Gummy stem blight (<i>Didymella bryoniae</i> and <i>Phoma cucurbitacearum</i>) See instructions below for “Soil application” against the following diseases: Vine decline (<i>Monosporascus cannonballus</i>) Charcoal rot (<i>Macrophomina phaseoli</i>) “Damping off,” seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Fruiting vegetables such as tomatoes, peppers, eggplant, tomatillo, okra, and others.	Bacterial spot (<i>Xanthomonas</i> spp.)* ¹ Bacterial speck (<i>Pseudomonas syringae</i> pv. <i>tomato</i>)* ¹ Gray mold (<i>Botrytis cinerea</i>) Powdery mildew* (<i>Leveillula</i> , <i>Oidiopsis</i> , <i>Erysiphe</i> , and <i>Sphaerotheca</i> spp.) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for “Soil application” against the following diseases: “Damping off,” seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Southern blight (<i>Sclerotium rolfsii</i>)*
Leafy vegetables such as head and leaf lettuce, celery, spinach, radicchio, arugula, watercress, and others (including leafy <i>Brassica</i> vegetables such as mustard and collard greens, kale, bok choy, and related crops).	Downy mildew (<i>Bremia lactucae</i> , <i>Peronospora</i> spp.)* Powdery mildew (<i>Golovinomyces (Erysiphe) cichoracearum</i>)* Bacterial blights Head and leaf drop (<i>Sclerotinia</i> spp.) ² Pink rot (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> spp.) See instructions below for “Soil application” against the following diseases: “Damping off,” seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Bottom rot (<i>Rhizoctonia solani</i>)

Legume vegetables succulent and dried beans and peas such as green, snap, shell, and Lima beans, garbanzo beans, chickpeas, soybeans, dry beans, peas, split peas, lentils, and other legumes.	White mold (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Microsphaera diffusa</i>) Rusts*, including <i>Uromyces appendiculatus</i> , <i>Puccinia</i> spp., and Asian soybean rust (<i>Phyospora pachyrhizi</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Root, tuber, and corm vegetables such as potato, sweet potato, carrot, cassava, beets, ginger, radish, horseradish ²² , ginseng, turnip, and other root, tuber and corm crops.	Black root/crown rot (<i>Alternaria</i> spp.) Bacterial leaf blight (<i>Xanthomonas campestris</i>) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Gray mold (<i>Botrytis</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Black leg /bacterial soft rot (<i>Erwinia carotovora</i>) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: Black scurf (<i>Rhizoctonia solani</i>) Cavity spot (<i>Pythium</i> spp.) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Other vegetables such as sweet corn, popcorn, asparagus, peanut, and watercress	<i>Botrytis</i> spp. Rusts (<i>Puccinia</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> and <i>Cercosporidium</i> spp.)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tree fruits and nuts, including but not limited to:	
Citrus such as orange, lemon, lime, grapefruit, tangerine (mandarin), tangelo, pummelo, and other citrus	<i>Alternaria</i> leaf spot (<i>Alternaria alternata</i>) Postbloom fruit drop (<i>Colletotrichum acutatum</i>)* Greasy spot (<i>Mycosphaerella citri</i>)* ³ Citrus canker (<i>Xanthomonas campestris</i> pv. <i>citri</i>) ¹ Scab (<i>Elsinoe fawcettii</i>)* ⁴ Melanose (<i>Diaporthe citri</i>)*
Pome fruits such as apple, pear, crabapple, quince, and others	Powdery mildew (<i>Podosphaera leucotricha</i>) ⁵ Scab (<i>Venturia</i> spp.)* Flyspeck (<i>Zygophiala jamaicensis</i>) ⁶ Sooty blotch disease complex ⁶ Brooks spot (<i>Mycosphaerella pomi</i>) ⁶ Bot rot/white rot (<i>Botryosphaeria dothidea</i>) ⁶ Bitter rot (<i>Colletotrichum</i> spp.) ⁶ Cedar apple rust (<i>Gymnosporangium juniperi-virginianae</i>) ⁶ Fire blight (<i>Erwinia amylovora</i>)* ⁷
Stone fruits such as apricot, cherry, nectarine, peach, plum, prune, pluot, and others	Powdery mildew (<i>Sphaerotheca</i> and <i>Podosphaera</i> spp.)* ⁸ Bacterial canker (<i>Pseudomonas</i> spp.) Brown rot blossom blight (<i>Monilinia laxa</i>) ⁹ Brown rot (<i>Monilinia fructicola</i>)* ¹⁰ Gray mold (<i>Botrytis cinerea</i>) ¹⁰ Peach leaf curl (<i>Taphrina deformans</i>) Bacterial leaf spot (<i>Xanthomonas arbuticola</i> pv. <i>pruni</i>) ¹ Rusty spot (<i>Podosphaera leucotricha</i>) ¹
Tree nuts such as almond, pistachio, pecan, walnut, filbert, hazelnut, chestnut, macadamia, and other tree nuts.	Walnut blight (<i>Xanthomonas campestris</i>) ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>)* Bacterial canker (<i>Pseudomonas syringae</i>) Shot hole (<i>Wilsonomyces carpophilus</i>)* Brown rot (<i>Monilinia</i> spp.)* Pecan scab (<i>Cladosporium caryigenum</i>)* ¹

Pomegranates	Leaf and fruit spots (<i>Cercospora</i> , <i>Gloeosporium</i> and <i>Pestalotia</i> spp.) ¹ Fruit rots (<i>Alternaria</i> , <i>Botrytis</i> , and other spp.) ¹⁰ Powdery mildew (<i>Sphaerotheca pannosa</i>)
Other fruits, including but not limited to:	
Strawberry	Powdery mildew (<i>Sphaerotheca macularis</i> , <i>Erysiphe</i> spp.)* ¹² Gray mold (<i>Botrytis cinerea</i>)* ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>) Angular leaf spot (<i>Xanthomonas fragariae</i>) ¹ For the following diseases, see instructions below for "Soil application" (and also root dip instructions ²²): "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. Charcoal rot (<i>Macrophomina phaseolina</i>)
Berries, including blueberry, blackberry, raspberry, loganberry, huckleberry, gooseberry, elderberry, cranberry (non-flooded fields), current, and other berries	Mummy berry (<i>Monilinia vaccinii-corymbosi</i>)* Botrytis blight (<i>Botrytis cinerea</i>) Bacterial canker (<i>Pseudomonas</i> spp.) ¹³ Anthracnose fruit rot (<i>Colletotrichum acutatum</i>) ¹⁰
Grapes including wine grapes, table grapes, and raisins	Powdery mildew (<i>Erysiphe</i> (formerly <i>Uncinula</i>) <i>necator</i>) ¹⁴ Gray mold (<i>Botrytis cinerea</i>) ¹⁵ Sour rot complex ¹⁵ Downy mildew (<i>Plasmopara viticola</i>)* Phomopsis (<i>Phomopsis viticola</i>) ¹⁶ Eutypa (<i>Eutypa lata</i>) ¹⁷
Tropical fruits such as avocado ¹⁸ , mango ¹⁸ , papaya ¹⁹ , pineapple ¹⁹ , banana, plantain, and others.	Anthracnose (<i>Colletotrichum</i> spp.) Scab (<i>Sphaceloma perseeae</i>) Bacterial canker (<i>Xanthomonas campestris</i>) Sigatoka (<i>Mycosphaerella fijiensis</i>) ²⁰
Other Crops	
Herbs and spices such as basil, thyme, coriander, dill, cilantro, parsley, mint, and others.	Powdery mildews (<i>Oidium</i> spp. and others) Downy mildews (<i>Peronospora</i> spp. and others)* Damping off diseases (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Alternaria</i> , and <i>Fusarium</i> spp.) Leaf spots (<i>Alternaria</i> , <i>Septoria</i> , <i>Colletotrichum</i> , and <i>Cercospora</i> spp.)* Bacterial diseases (<i>Erwinia</i> , <i>Xanthomonas</i> , and <i>Pseudomonas</i> spp.) Rusts (<i>Puccinia</i> spp. and others) "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Coffee	Coffee berry disease (<i>Colletotrichum coffeanum</i>) ¹ Coffee rust (<i>Hemileia vastatrix</i>) ¹ Anthracnose (<i>Colletotrichum</i> spp.) <i>Botrytis</i> flower blight <i>Cercospora</i> leaf spot and berry blotch "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tobacco	Angular leaf spot (<i>Pseudomonas</i> spp.) Anthracnose (<i>Colletotrichum</i> and <i>Glomerella</i> spp.) Blue mold or downy mildew (<i>Peronospora</i> spp.)* Brown spot (<i>Alternaria</i>) Barn spot/ frog-eye leaf spot (<i>Cercospora nicotianae</i>) ¹⁰ Collar rot (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Erysiphe cichoracearum</i>) Target spot (<i>Rhizoctonia solani</i>) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Ophiostoma</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.

	Charcoal rot (<i>Macrophomina phaseolina</i>) Black root rot (<i>Thielaviopsis basicola</i>) Black shank (<i>Phytophthora</i> spp.)* Southern blight/southern stem rot (<i>Sclerotium rolfsii</i>)*
Mint	Rust (<i>Puccinia</i> spp.)
Hops	Powdery mildew (<i>Sphaerotheca macularis</i>) ²¹
<p>Footnotes:</p> <p>*Suppression only; for improved control mix or rotate with chemical fungicide approved for such use.</p> <p>¹ Tank mix or rotate with copper-based fungicides at label rates for improved control.</p> <p>² Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist.</p> <p>³ For greasy spot suppression, apply at first new foliar flush and repeat with each new flush. Tank mix with spray oil or copper based fungicide at labeled rates.</p> <p>⁴ For suppression of citrus scab, start applications at first new foliage flush and repeat at petal fall and when fruit are ½ inch in diameter.</p> <p>⁵ Make first application at or before tight cluster if conditions favor disease development. Repeat at 7-10 day intervals through the second cover spray or longer on susceptible varieties or if environmental conditions favor rapid disease development.</p> <p>⁶ Begin applications before bloom when environmental conditions favor disease development, repeating at 7 to 14 day intervals or as needed. Control may be enhanced by addition of a surfactant to improve spray coverage. Use only surfactants known to be safe for use on the crop and for which such use is allowed.</p> <p>⁷ Rotate with antibiotics registered for fire blight control for improved performance. Begin applications at 1-5% open blossoms and repeat every 3-7 days as necessary until petal fall, when intervals can be increased to 7 days. CX-9032 can also be used in summer "cover spray" applications to control the shoot blight phase of fire blight and summer diseases. Can be mixed with copper fungicides to improve control.</p> <p>⁸ Make first application at popcorn stage and repeat every 7 days.</p> <p>⁹ Start applying at early bloom stage and repeat every 7 days through petal fall.</p> <p>¹⁰ Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections.</p> <p>¹¹ Begin applications at or before pistillate bloom, repeating every 7-10 days. Apply before rainfall if possible, and tank mix or rotate with a copper-based bactericide registered for such use for improved control.</p> <p>¹² Start applications at or just before flowering and repeat every 7-10 days as needed through harvest.</p> <p>¹³ Apply before fall rains and again during dormancy before spring growth.</p> <p>¹⁴ Start applications when new shoots are ½ to 1½ inches long. Repeat at 3-5 inches, 8-10 inches, and then at 7-10 day intervals until disease conditions no longer exist.</p> <p>¹⁵ Apply at bloom, before bunch closure, at veraison, and before harvest.</p> <p>¹⁶ Apply when shoots are ½ to 1 inch long and again when 6-8 inches long.</p> <p>¹⁷ Mix 2 fluid ounces CX-9032 per gallon of water and apply to pruning wounds.</p> <p>¹⁸ Apply at budbreak and repeat on 14-21 day interval as needed through harvest.</p> <p>¹⁹ Apply at flowering and repeat on 14-21 day interval as needed through harvest.</p> <p>²⁰ Apply at first appearance of leaves and repeat at 7-21 day intervals as needed, in sufficient water to obtain thorough coverage of foliage. Tank mix with spray oil or other registered fungicides for improved control.</p> <p>²¹ Mix 6 to 10 fluid ounces CX-9032 per 100 gallons of water and apply in minimum of 20 gallons per acre from emergence to training, 50 gallons per acre from training to wire, and 100 gallons per acre from wire touch through harvest.</p> <p>²² For treatment of horseradish or strawberry roots immediately before transplanting: immerse bare roots (individually or in bunches) for 10 seconds in a suspension of 1 to 2 pints CX-9032 per gallon of water.</p>	

Foliar application: For control of diseases on foliage, flowers, fruit, or other above-ground parts of plants: Mix CX-9032 in water and apply as a spray at a rate of **0.5 to 6 quarts per acre** in sufficient water to achieve thorough coverage of the crop canopy with minimal runoff. Begin applications at crop emergence, transplanting, or when conditions are conducive to development of disease. Repeat application every 3 to 10 days, or as needed, for as long as conditions favor disease development. Lower rates (0.5 to 3 quarts per acre) may be applied under light disease pressure, to smaller (e.g. newly-emerged) plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use

higher label rates (3-6 quarts/acre), apply more frequently (every 3-7 days), and mix or rotate CX-9032 with other fungicides for improved performance.

Soil application: *For control of soilborne diseases infecting seeds, seedlings, roots, crown, stems, or other plant parts below ground or in contact with soil:* Apply CX-9032 at **0.5 to 4.5 pints per acre**. Mix the required amount in sufficient water to apply by one of the following methods:

- Soil drench applied to transplants in flats or pots in the greenhouse or nursery any time prior to transplanting (see additional drench instructions under “Nurseries, greenhouses, shade houses, and ornamental plants” below).
- Soil drench at transplanting, using a “water wheel” injector, spray nozzles/hoses, or other method to drench each root ball and/or planting hole.
- Soil or seedline drench, or banded spray (in-furrow) at planting. See the section on “Banded (in-furrow) application” below for additional instructions.

Follow-up (post-planting) preventative applications can be made every 2-4 weeks by one or more of the following methods, if needed:

- Drip (trickle) or any type of sprinkler irrigation, any time after planting or transplanting. See Chemigation Instructions for additional information.
- Spray directly onto the soil surface and/or lower plant parts. If targeting root disease, follow immediately with sufficient overhead sprinkler irrigation to move CX-9032 to the root zone.
- Injection directly into the rooting zone using shanks or similar equipment.

Lower rates (0.5 to 2 pints per acre) may be applied under light disease pressure, to smaller plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (2 - 4.5 pints per acre), apply more frequently (every 2 weeks), and mix or rotate CX-9032 with other fungicides for improved performance.

Banded (in-furrow) application: Use the table below to determine the correct application rate in fluid ounces per 1,000 row feet based on row spacing and desired rate per acre. Mix the required amount of CX-9032 in water and apply as banded spray (4” to 6” wide) or seedline drench centered over the planting furrow. Apply directly over seeds in the furrow just before they are covered with soil. The volume of water required per acre or per 1,000 row feet will depend on the application equipment used. Consult your local cooperative extension service if you need assistance calibrating band spraying equipment.

Rates for banded (in-furrow) application: Find desired application rate in the left column. Read across that line to the correct row spacing indicated at the top to find the number of fluid ounces per 1,000 row feet that will provide the desired application rate per acre.

Rate/acre		Space between rows (inches)														
Pints	fl oz	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
0.5	8	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
0.75	12	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
1.0	16	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2
1.25	20	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.5
1.5	24	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8
1.75	28	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
2.0	32	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2.25	36	0.8	1.0	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	2.3	2.5	2.6	2.8
2.5	40	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9	3.1
2.75	44	1.0	1.2	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2	3.4
3.0	48	1.1	1.3	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.5	3.7
3.25	52	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
3.5	56	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.3
3.75	60	1.4	1.6	1.8	2.1	2.3	2.5	2.8	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6
4.0	64	1.5	1.7	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
4.25	68	1.6	1.8	2.1	2.3	2.6	2.9	3.1	3.4	3.6	3.9	4.2	4.4	4.7	4.9	5.2
4.5	72	1.7	1.9	2.2	2.5	2.8	3.0	3.3	3.6	3.9	4.1	4.4	4.7	5.0	5.2	5.5

Nurseries, greenhouses, shadehouses, and ornamental plants

Spray application: Mix **0.5 to 6 quarts of CX-9032 per 100 gallons of water** and apply as a foliar spray of sufficient volume to wet the entire plant with minimal runoff. Begin preventative applications at plant emergence and repeat every 3-28 days as needed (every 3-7 days if disease pressure is high or environmental conditions are highly favorable to disease outbreak, 10-28 days under low pressure or less conducive conditions).

Drench application: Mix **0.5 to 4.5 pints of CX-9032 per 100 gallons of water** and apply as a drench or coarse spray to soil or other growing media in pots, flats, plugs, trays, or planting beds, for control or suppression of soilborne diseases of seedlings, cuttings, bedding plants, and transplants (including vegetables and other transplanted food crops). Make first application at or immediately before seeding, sticking, germination, or transplanting. Repeat applications every 14-28 days as needed. Transplants can be treated immediately before transplanting into field soils to protect against damping-off and other diseases that reduce plant establishment.

Cutting or root dip: Dip basal end of cuttings or bare roots (individually or in bunches) in a suspension of **1 to 2 pints of CX-9032 per gallon of water**. Immerse for 5-10 seconds immediately before planting.

Chemigation: Mix **0.5 to 4.5 pints of CX-9032 per 100 gallons of water** and apply via drip, handheld, or sprinkler irrigation systems. Refer to "Chemigation Instructions" for more details.

CROPS/USE SITES	DISEASES/PATHOGENS
Indoor, outdoor, and shade- or other cover-grown ornamental trees and shrubs, flowering plants, foliage plants, tropical plants, potted plants, potted or cut flowers, bedding plants, forestry seedlings, conifer production for	Powdery mildews caused by <i>Erysiphe</i> , <i>Podosphaera</i> , <i>Sphaerotheca</i> , <i>Oidium</i> , and <i>Golovinomyces</i> spp.) Anthracnose (<i>Colletotrichum</i> spp.) Bacterial leaf spots caused by <i>Erwinia</i> , <i>Pseudomonas</i> , and <i>Xanthomonas</i> spp. Damping-off disease (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> spp.) Late blight, blackeye, and root rots caused by <i>Phytophthora</i> spp. Gray mold and blight caused by <i>Botrytis cinerea</i>

reforestation, fruit trees, vegetables and other crops grown in greenhouses or nurseries.	Black root rot (<i>Aspergillus</i> spp.) Black spot of roses (<i>Diplocarpon rosae</i>) Downy mildew (<i>Peronospora</i> spp.) Leaf spots caused by <i>Alternaria</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Entomosporium</i> , <i>Helminthosporium</i> , and <i>Myrothecium</i> spp.) Rust (<i>Puccinia</i> spp.) Scab (<i>Venturia</i> spp.) Root rot, bottom rot, or stem rot caused by <i>Rhizoctonia solani</i> <i>Sclerotinia</i> blight <i>Fusarium</i> wilts
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Turfgrass application

For control of foliar diseases, apply CX-9032 at 1 to 4 fluid ounces per 1,000 square feet as a ground-directed spray in sufficient water to provide thorough coverage. To control root and crown diseases in or on the soil, immediately follow the spray with sufficient overhead sprinkler irrigation to move the product into the root zone.

USE SITES/CROPS	DISEASES/PATHOGENS
Turf, sod, lawns, golf course (fairways, roughs, greens, tees), grass seed production Including but not limited to: Bluegrass, Bentgrass, Bermudagrass (common & hybrid), Dichondra, Fescue, Orchardgrass, <i>Poa annua</i> , St. Augustine grass, Ryegrass, <i>Zoysia</i> , mixtures, and other grasses or ornamental turf	Anthracnose (<i>Colletotrichum graminicola</i>) Brown patch (<i>Rhizoctonia solani</i>) Dollar spot (<i>Lanzia</i> and <i>Moellerodiscus</i> spp., formerly <i>Sclerotinia homeocarpa</i>) Powdery mildew (<i>Erysiphe graminis</i>) Rust (<i>Puccinia</i> spp.) Gray leaf spot (<i>Pyricularia grisea</i>) "Damping off" or seedling blights caused by <i>Pythium</i>

CHEMIGATION INSTRUCTIONS**General information:**

Apply this product through pressurized irrigation systems such as drip (trickle) irrigation (including micro-irrigation through spaghetti tubes or individual tubes) or sprinkler irrigation (including impact or microsprinklers, microjet, overhead boom, water gun, solid set, lateral move, end tow, side-roll, center pivot, or hand move, including mist-type systems); or with hand-held calibrated irrigation equipment (such as a hand-held wand with injector). Do not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and injector system and flush with clean water before use. Failure to provide a clean tank, free of scale or residues may reduce effectiveness of this product.

Drip (trickle) and micro-irrigation chemigation

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.

Sprinkler chemigation:

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

WARRANTY

Certis USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purpose referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the disease problem, condition of the crop, incompatibility with other influencing factors in the use of this product are beyond the control of the seller. Buyer assumes all risks of use, storage, or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

The following claims may be presented on the product's labeling:

OMRI Listed
OMRI seal

MASTER LABEL
SUBLABEL B: Homeowner Use

place holder for OMRI Seal

CX-9032

Aqueous Suspension Biofungicide/Bactericide for control of plant diseases in home gardens, vegetables, ornamental and fruit trees, shrubs, lawns, flowers, bedding plants, and potted ornamental plants

FOR ORGANIC GARDENING**Active Ingredient:***Bacillus amyloliquefaciens* strain D747* 99.35%**Other Ingredients**65%**Total** 100.00%*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS:

Lot No.:

KEEP OUT OF REACH OF CHILDREN**CAUTION****SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS****PRECAUTIONARY STATEMENTS****HAZARDS TO HUMANS (AND DOMESTIC ANIMALS): CAUTION:**

Harmful if inhaled. Avoid breathing spray mist. Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Causes moderate eye irritation. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

FIRST AID

If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.

Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. Hot Line Number: 1-800-255-3924

ENVIRONMENTAL HAZARDS:

To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus amyloliquefaciens*. CX-9032 kills pathogenic organisms on foliage and other plant parts by producing antibiotic compounds (iturins) which disrupt pathogen cell wall production. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Mixing instructions:

CX-9032 must be mixed with water and applied as a spray to fruit and foliage, or as a drench to plant roots. See below for specific mix rate information.

Application rates and methods:

Spray application for control of powdery mildews, leaf spots, anthracnose, gray mold, and other diseases affecting leaves, flowers, fruit, and other above-ground plant parts: Mix 1 teaspoon of CX-9032 per gallon of water and apply directly to plants using a hand pump sprayer or other suitable spray equipment. Spray just enough to wet all leaves and fruit with minimal run-off or dripping. Total coverage depends on the size of plants to be sprayed and the type of sprayer used. Repeat as needed to maintain disease control, typically every 7-10 days. If disease is prevalent or environmental conditions such as high humidity favor disease outbreak, increase the mixing rate to 1 tablespoon per gallon and shorten the interval between sprays to every 3-7 days.

Drench application for control of diseases affecting plant roots, tubers, or other parts of the plant in contact with soil: Mix 1 teaspoon of CX-9032 per gallon of water and apply to the soil by one of the following methods:

1. For potted plants (indoors or outdoors), apply in sufficient water to wet the entire root mass using a watering can or tank-fed watering wand. Do not water plants again until 24 hours after application. Alternatively, use a hand-pump or other sprayer to spray the mixture on the soil surface in each pot, then immediately apply sufficient water to move the product into the roots.
2. Drench the roots of transplants with approx. 4 fluid ounces of the mixture immediately before transplanting into pots or garden soil. Allow to soak into the root ball before transplanting.

3. For outdoor-grown plants, use a watering can or sprayer to drench the soil in the planting furrow or transplant hole immediately before planting or transplanting. The amount of water required will depend on the size of the hole or length of furrow.
4. Alternatively, apply in the first watering after planting or transplanting, either by mixing directly into the water at the rate indicated above, or by spraying onto the soil surface at the base of each plant and immediately watering in with a watering can, hose, sprinkler, or other watering device.

CX-9032 can be applied up to and including the day of harvest.

For application to lawns and other turfgrass areas: Mix 1 teaspoon of CX-9032 per gallon of water and apply as a fine spray to the surface of the lawn or grass area. Total amount of mix required will depend on the type of sprayer used and area to be covered, but typically 2 to 5 gallons of spray mix may be required per 1,000 square feet of turf. CX-9032 can be "watered in" for control of soilborne root and crown diseases by thorough watering immediately after application either with sprinklers or by spraying just before or during light rain.

STORAGE AND DISPOSAL

PESTICIDE STORAGE:

Keep in original container. Store away from direct sunlight, feed, or foodstuffs. Keep container tightly sealed when not in use.

PESTICIDE DISPOSAL AND CONTAINER HANDLING

Non-refillable container. Do not reuse or refill container.

If empty:

Place in trash or offer for recycling, if available.

If partly filled:

Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY

Certis USA L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the insect problem, condition of the crop, incompatibility with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller. Buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.



Certis USA, L.L.C.
9145 Guilford Road
Suite 175
Columbia, MD 21046
(301) 604-7340
FAX (301) 604-7015
www.certisusa.com

MEMORANDUM

To: Susanne Cerrelli
Regulatory Action Leader
Microbial Pest Control Branch
Biopesticides and Pollution Prevention Division (7511P)

From: Chris Dively/Certis USA

Subject: EPA File Symbol: 70051-RNT and 70051-RNL
Pesticide Petition Number: OF7760
Bacillus amyloliquefaciens strain D-747

The following information is submitted as requested in the BPPD review dated September 14, 2011.

- Revised draft labels for CX-9030 and CX-9032 revising the name of the active ingredient to *Bacillus amyloliquefaciens* strain D-747
- Revised Confidential Statements of Formula for CX-9030 and CX-9032
- USDA Patent Culture Collection recognition of deposit (deposit is accessible through contact with International Depositary Authority – Agricultural Research Center, Peoria, Illinois 61604)
- Clarification of test material used in the Acute Dermal Irritation and Acute Eye Irritation studies with CX-9032
- Discussion of potential allergen residues

Information is submitted directly after this cover memorandum. Please contact me at 301-483-3806 or cdively@certisusa.com.

CX-9030

Water Dispersible Granular Biofungicide

For Organic Production

Active Ingredient:

<i>Bacillus amyloliquefaciens</i> strain D747*	25.0%
Other Ingredients	75.0%
Total	100.0%

*Contains a minimum of 5×10^{10} colony-forming units (cfu) per gram

EPA Reg. No. 70051-

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET WEIGHT: 5 LBS

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID - Agricultural Use

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product label with you when calling a poison control center or doctor.
Hot Line No.: 1-800-255-3924

PRECAUTIONARY STATEMENTS - Agricultural Use

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION

Harmful if absorbed through skin. Harmful if inhaled. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants



Clarification about remaining issues EPA reg no. 70051-rnt and 70051-RNI

Susanne Cerrelli to: Dively, Chris

10/01/2010 04:40 PM

Our guidance for preparing microbial CSFs is on our website. In general, fermentation products that include the ai are listed on line one along with a measure for viability. In most instances the viability measure is the enforceable limit and should be a guaranteed minimum.

[REDACTED]

We do not expect a dry or wet weight of a microbial ai to be put on the CSF unless there is a specific reason to do so, and a method to reliably separate only the ai from other fermentation products. Since most microbial a.i.'s are inseparable from fermentation products they are most often considered and tested in this manner.

In rare instances such as if a toxic product is present after fermentation, there may be a requirement to list this on a separate line of the CSF: see 40CFR158.350(a)(3)

Our guidance for preparing biopesticide CSF is on our webpage with a sample CSF on page 16 of the guidance document: <http://www.epa.gov/pesticides/biopesticides/regtools/biopest-csf.pdf>

Another issue is the inert ingredients. In order to meet the organic certification sought on the label they must be on the old EPA 14a or 4b inerts list or EPA 25b list and generally be from a natural source, or qualify separately based on internal guidance. This guidance should be sent to the registrant early in the process where organic certification is sought.

http://www.epa.gov/opprd001/inerts/section25b_inerts.pdf
<http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5067226>



7 CFR.pdf



completelist_inerts CAS.pdf

I can not email CBI but need to explain to talk to you about 2 inerts as they all need to be on list 4 to be organic.

Susanne Cerrelli

Regulatory Action Leader
Microbial Pesticides Branch
Biopesticides Pollution Prevention Division (7511P)

703-308-8077(w)



B. amyloliquefaciens - deficiencies
Shannon Borges to: Susanne Cerrelli

08/24/2011 02:26 PM

Hi Susanne,

Gail and I went through the studies for *Bacillus subtilis* var. *amyloliquefaciens* D747, and we have noted some deficiencies. The nontarget insect studies were all determined to be unacceptable, and both honeybee studies, the avian oral, and the nontarget plant study were supplemental. Since *B. amyloliquefaciens* is not related to a known plant pathogen, the nontarget plant study is not required. However, the nontarget insect, honeybee, and bird studies need to be re-addressed, either with additional studies or with rationale (we thought the latter would be fine, and hopefully would not require renegotiation).

Let me know if you have any questions.

Shannon

to justify no tox or pathogenicity



Fw: FYI: Re:Other forthcoming NTO assignments for B. subtilis and B. amyloliquefaciens

Gail Tomimatsu to: Susanne Cerrelli, Denise Greenway

08/31/2011 09:19 AM

Susanne and Denise:

Forwarding this note to you and to Denise as a heads' up in regards to your two products. Denise, I know you're out on leave until Sept. 8.

g

"Those who dwell as scientists or laymen among the beauties and mysteries of the earth are never alone or weary of life." -- Rachel Carson

Gail S. Tomimatsu, Ph.D.
Plant Pathologist
Microbial Pesticides Branch
(703)-308-8543; FAXs: (703)-308-7026, 305-0118

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Biopesticides and Pollution Prevention Division Mailcode: 7511P
1200 Pennsylvania Avenue, NW
Washington DC 20460

Courier Address:
U.S. EPA-OPP
Biopesticides and Pollution Prevention Division
8th Floor, S-8338
2777 Crystal Drive
Arlington, VA 22202

— Forwarded by Gail Tomimatsu/DC/USEPA/US on 08/31/2011 09:17 AM —

From: Gail Tomimatsu/DC/USEPA/US
To: Shannon Borges/DC/USEPA/US@EPA
Cc: Annabel Waggoner/DC/USEPA/US@EPA, Alan Reynolds/DC/USEPA/US@EPA
Date: 08/31/2011 08:48 AM
Subject: Re:Secondary review of *Pasteuria nishizawae* and other forthcoming NTO assignments for *B. subtilis* and *B. amyloliquefaciens*

Shannon and Annabel,
FYI Alan

I have a risk assessment I must do for Denise within the next few days. I will then be out of the office until the last week in September. However, for the immediate needs re: *Pasteuria*, Shannon, if you can send the waiver rationale to me by COB Thursday, and leave the paper submission on my shelf or with me, I can probably conduct a secondary review of the information and submission Labor Day week.

Regarding the secondary review of *B. sub-amyloliquefaciens* and the problems of conditional registration and re-negotiation; I think it best we have a team meeting to discuss what to do about waiver rationale addressing non-target insect data requirements for the *B. subtilis*/*B. amyloliquefaciens* products that were submitted by Certis. This will help all of our learning curves, and make the reviews/assessments more consistent.

Alan, if we can have the team meeting with Annabel, Shannon and the RALs Denise and Suzanne next

week sometime (~40-60 minutes would be good). The problem(s) as I see it with these products, are that Certis submitted waiver rationale for the *B. subtilis* product for NT insects; but submitted studies for the *B. amyloliquefaciens* which were classified Unacceptable. Other products containing these species went through registration review in 2010; and it is not clear to me when some of the other NTI studies were submitted for the other products. Please recall that the *B. sub* product (the one I am reviewing) is the "similar" ai to that of Becker Underwood.

Can we find some time to meet next week?

best,
g

"Those who dwell as scientists or laymen among the beauties and mysteries of the earth are never alone or weary of life." -- Rachel Carson

Gail S. Tomimatsu, Ph.D.
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Arlington, VA 22202



Re: B s. amyloliquiefaciens study #2 on insects - --"Risk assessment" in progress...

Shannon Borges to: Gail Tomimatsu
Cc: Susanne Cerrelli, Alan Reynolds
This message is encrypted.

08/30/2011 01:40 PM

History: This message has been replied to.

All,

I am not sure that mitigating label language would be all that helpful, since our review must consider all nontarget insects, not just those that are beneficial (including listed species). It is up to the applicant to make the case that their a.i. is not harmful to nontargets, and currently without additional information we cannot do that for some of them (unless I make the case for it, which is not my job). The alternative is presumption of risk.

Yes, she does have other rationale to submit as well.

Shannon

Gail Tomimatsu

From: Gail Tomimatsu/DC/USEPA/US To: Shan...

08/30/2011 01:18:12 PM

From: Gail Tomimatsu/DC/USEPA/US
To: Shannon Borges/DC/USEPA/US@EPA, Susanne Cerrelli/DC/USEPA/US@EPA
Cc: Alan Reynolds/DC/USEPA/US@EPA
Date: 08/30/2011 01:18 PM
Subject: Re: B s. amyloliquiefaciens study #2 on insects - --"Risk assessment" in progress...

Susanne and Shannon,
FYI Alan

For this EP, there were 3 unacceptable NTI studies already peer-reviewed. The registrant should submit a waiver rationale addressing why additional nontarget insect testing is not necessary; especially because there are other studies (i.e., the one she just Emailed) that provide sufficient information for a risk assessment (if indeed that is true). We do not have sufficient time to review and peer review the study she sent, before you (Susanne) must move forward with public comment (~ November) and a PRIA date of ~ December (?), without negotiation of the PRIA date. Assuming she submits the required "deficiencies" and waiver requests with appropriate justification; we won't receive these until mid or late September giving us basically 1.5 months to review and revise the risk assessment. I agree with Shannon; this is grossly unfair. All of our workloads are extremely full.

I am cc'ing Alan so that he is apprised of this "late in the process" submission. If she wants us to review it before registration, then I would hope that a new PRIA date is requested. Otherwise, the best we can do for now is use precautionary mitigating label language for a *possible* conditional registration in December: , e.g., "Do not use in IPM programs/strategies that use beneficial insects. This product has not been tested against beneficial insect species." My understanding is that there are other waiver rationale that must be written

"Those who dwell as scientists or laymen among the beauties and mysteries of the earth are never alone or weary of life."
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Arlington, VA 22202

Shannon Borges	From: Shannon Borges/DC/USEPA/US To: Sus...	08/30/2011 12:31:39 PM
Susanne Cerrelli	From: Susanne Cerrelli/DC/USEPA/US To: Sha...	08/29/2011 05:56:46 PM



Re: B s. amyloliquiefaciens study #2 on insects - --"Risk assessment" in progress...

Gail Tomimatsu to: Shannon Borges, Susanne Cerrelli

08/30/2011 01:18 PM

Cc: Alan Reynolds

This message is encrypted.

Susanne and Shannon,
FYI Alan

For this EP, there were 3 unacceptable NTI studies already peer-reviewed. The registrant should submit a waiver rationale addressing why additional nontarget insect testing is not necessary; especially because there are other studies (i.e., the one she just Emailed) that provide sufficient information for a risk assessment (if indeed that is true). We do not have sufficient time to review and peer review the study she sent, before you (Susanne) must move forward with public comment (~ November) and a PRIA date of ~ December (?), without negotiation of the PRIA date. Assuming she submits the required "deficiencies" and waiver requests with appropriate justification; we won't receive these until mid or late September giving us basically 1.5 months to review and revise the risk assessment. I agree with Shannon; this is grossly unfair. All of our workloads are extremely full.

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Shannon Borges

From: Shannon Borges/DC/USEPA/US To: Sus...

08/30/2011 12:31:39 PM

From: Shannon Borges/DC/USEPA/US
To: Susanne Cerrelli/DC/USEPA/US@EPA
Cc: Gail Tomimatsu/DC/USEPA/US@EPA
Date: 08/30/2011 12:31 PM

Subject: Re: Fw: You Have Received a New Scan- B s. amyloliquiefaciens study #2 on insects - should
Dively submit this? Is this helpful? (I encrypted)

Hi Susanne,

These studies look to be much better than the ones that were previously submitted (why didn't she submit these in the first place???); however, their acceptability is dependent on our review. If they are unacceptable, then it will just take longer for me to finish my assessment. I also think it is rather unfair to put me and Gail in a time crunch to get this and the other study reviewed so that we meet the Phase IV date. If Chris knows anything about our data requirements and her a.i., then she should see that the better path would be to write rationale as to why her a.i. would not be expected to be harmful to nontarget insects.

Nonetheless, I can get these reviewed in a day or two (except that I will not be likely to have time to work on these until later next week). Gail has done the secondary review of the DERs and I would likely ask her to do the secondary for these as well, but her ability to do it will depend on her workload. Annabel may be able to do it as well, but from what I understand she has a pretty heavy workload as well. Having to review these and write up the assessment and get a secondary review may take up to 3 weeks (assuming these are acceptable) - would that put a burden on you?

Certis also has to submit rationale for the bird and honeybee studies.

Thanks - I know all of this is a pain!

Shannon

Susanne Cerrelli

From: Susanne Cerrelli/DC/USEPA/US To: Sha...

08/29/2011 05:56:46 PM



70051-RNI and RNT

Dively, Chris

to:

Susanne Cerrelli

09/14/2011 04:09 PM

Hide Details

From: "Dively, Chris" <cdively@certisusa.com>

To: Susanne Cerrelli/DC/USEPA/US@EPA

Susanne,

Certis USA authorizes you to fax the Product Chemistry and Health Effects DERs to the fax number 301-604-7015.

Thank you,
Christina Dively
Director of Regulatory Affairs



Re: B. amyloliquefaciens - deficienciesEPA file symbols 70051- RNI and RNT

SEE below 

Susanne Cerrelli to: Shannon Borges

08/26/2011 03:03 PM

Shannon-

I just got off the phone with Chris Dively to provide an adequate response she will need a copy of the reviews for D747. She wanted to have a better understanding of what deficiencies were identified so she could respond in a complete fashion (and the DERs would help).

She has additional non- target insect studies that were done for Annex 1 registration in Europe. She says they were deemed acceptable and that she could submit a copy Monday. I asked her what insects were tested and she said she will email us a list. I will forward Dively's list of tested insects when I get it. Her understanding is that this is not registered in Europe yet, but she mentioned the insect studies were deemed acceptable by the Europeans.

I tried to explain to her that the eco- assessment is complete but that we wanted to give her an opportunity to address the guidelines that were found deficient to improve the registration decision for their company.

Could I get the signed reviews on Tuesday for D747?

When I give you the list of available insect studies that were not submitted yet , can you give me an indication if the studies should be submitted.? or should she just submit whatever she has and if it isn't helpful you don't review it? Please let me know your preference, and any other comments/ suggestions on the matter.

I am going to go ahead and see if I can get approval to fax the reviews to Dively after you and Gail sign them..

I can stop by in personTuesday but am working at home Monday.

THANKS!

Susanne Cerrelli

Regulatory Action Leader
Microbial Pesticides Branch
Biopesticides Pollution Prevention Division (7511P)

703-308-8077(w)

Shannon Borges Hi Susanne, Gail and I went through the studies...

08/24/2011 02:26:03 PM

From: Shannon Borges/DC/USEPA/US
To: Susanne Cerrelli/DC/USEPA/US@EPA
Date: 08/24/2011 02:26 PM
Subject: B. amyloliquefaciens - deficiencies

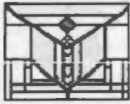
Hi Susanne,

Gail and I went through the studies for Bacillus subtilis var. amyloliquefaciens D747, and we have noted some deficiencies. The nontarget insect studies were all determined to be unacceptable, and both honeybee studies, the avian oral, and the nontarget plant study were supplemental. Since B.

amyloliquefaciens is not related to a known plant pathogen, the nontarget plant study is not required. However, the nontarget insect, honeybee, and bird studies need to be re-addressed, either with additional studies or with rationale (we thought the latter would be fine, and hopefully would not require renegotiation).

Let me know if you have any questions.

Shannon



Fw: B. amyloliquefaciens -D747 EPA File Symbols 70051-RNI and RNT

Susanne Cerrelli to: Dively, Chris

08/25/2011 10:54 AM

Bcc: Shannon Borges, Alan Reynolds

Dear Ms. Dively

The science reviewers evaluated the ecological hazard evaluation studies for *Bacillus subtilis* var. *amyloliquefaciens* D747, and have noted some deficiencies. The nontarget insect studies were all determined to be unacceptable, and both honeybee studies, the avian oral, and the nontarget plant study were supplemental. Since *B. amyloliquefaciens* is not related to a known plant pathogen, the nontarget plant study is not required. However, the nontarget insect, honeybee, and bird studies need to be re-addressed, either with additional studies or with adequate rationales to justify a finding of no toxicity or pathogenicity to these non-target organisms. We wanted to alert you before sending a letter with the reviews in hopes that this could help expedite your preparation of a response, for our assessments.

Please, let me know if you have any questions.

Regards,

Susanne Cerrelli

Regulatory Action Leader
Microbial Pesticides Branch
Biopesticides Pollution Prevention Division (7511P)

703-308-8077(w)



U. S. Environmental Protection Agency
Office of Prevention, Pesticides, and Toxic Substances (OPPTS)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

DOCKET VERIFICATION AND CERTIFICATION FORM
For Internal OPPTS Use Only

Title of Action: ① Notice of RECEIPT:
New Active Ingredients and their Products (FIFRA)
② and Notice of Filing of Pesticide Petitions for Residues of Pesticide
Chemicals in or on Various Commodities for *Bacillus subtilis* var.
amyloliquefaciens strain D747

RIN #: Docket ID #: EPA-HQ-OPP-2010-0944 FRL#:

Docket Title: *Bacillus subtilis* var. *amyloliquefaciens* strain D747

Contact Information: Name: Susanne Cerrelli Phone #: 703-308-8077

Legacy Information: ; FDMS Docket # EPA-HQ-OPP0346;

Program Lead's Verification: I have reviewed the docket and verified the following:

- ☒ All of the documents identified in the attached Docket Index have been submitted to the appropriate Docket Manager for inclusion in the docket identified above.
- ☐ Documents containing copyrighted, CBI, or otherwise protected information have been identified to allow for "special" processing by the appropriate Docket Staff.
- ☒ The material has been assembled in a useable form to support the document being published in the FEDERAL REGISTER (FR).
- ☒ COMMENTS: *Susanne Cerrelli* is the primary Docket Contact Person. Estimated FR publication date is *mid Dec 2010*

Date: 11/17/10 Initials: *SC* Phone #: 703-308-8077

Docket Manager's Verification and Sign-off: I hereby confirm the following:

- ☒ The Docket ID # identified above matches our records.
- ☒ The documents identified in the attached Docket Index have been received by the OPP Docket Staff.
- ☒ The documents have been properly processed for inclusion in EPA FDMS Dockets, as appropriate.
- ☒ The documents either already are in the docket or are being processed for inclusion in the docket.
- ☐ COMMENTS:

Date: 11/17/2010 Signature: *Kathy O. Winkler* Phone #: 703-308-5805

Program Lead's Certification: I hereby certify that:

- ☒ I have completed the verification above.
- ☒ I have submitted to the Docket Manager all of the documents that I identified needed to be updated or added to the docket.
- ☒ I have obtained the Docket Manager's sign-off.
- ☒ The docket is complete and ready for public release.
- ☐ COMMENTS:

Date: 11/17/10 Signature: *Susanne Cerrelli* Phone #: 703-7308-8077

→ this is being batched

Notices expected in mid Dec 2010



Re: FW: You Have Received a New Scan- is this for CX-9032 (EPA File symbol 70051-RNT)??

Susanne Cerrelli to: Dively, Chris

Cc: Joel Gagliardi

10/25/2010 01:20 PM

I noticed some problems with the submitted new CSFs that you sent today. It is not obvious to me what product the new submitted CSFs are for.

- a) In field #8 - the product name needs to be clearly indicated on all CSFs. Are these for CX-9032?
- b) It is helpful if you insert the File symbol # in field #4. (I believe the submission was for 70051- RNT. As this is the file symbol for CX-9032)
- c) The CFU/g needs to be indicated on both of the CSFs.
- d) Your basic and alternative formulation must have the same certified limits for the Active ingredient. [40 CFR 152.43 (b)(1)]
- e) The full scientific name of the active ingredient needs to be indicated. (Genus, species, Var., Strain) Cell collection number on the CSF could be helpful too. (Is the Cell collection # elsewhere in the prior submission for this product?)

Please note, additional changes may be requested when this CSF is evaluated by our reviewers, but these problems, were evident to me immediately, Can you send me corrected CSFs for 70051-RNT, by Tuesday?-

Regards,

Susanne Cerrelli

Regulatory Action Leader
Microbial Pesticides Branch
Biopesticides Pollution Prevention Division (7511P)

703-308-8077(w)

"Dively, Chris"

Hi Susanne, Attached is the primary CSF and an...

10/25/2010 11:41:56 AM

From: "Dively, Chris" <cdively@certisusa.com>
To: Susanne Cerrelli/DC/USEPA/US@EPA
Cc: "Dively, Chris" <cdively@certisusa.com>
Date: 10/25/2010 11:41 AM
Subject: FW: You Have Received a New Scan

Hi Susanne,
Attached is the primary CSF and an alternate CSF for the D747 liquid product. The [REDACTED] have been removed. There is no change in performance and properties of the end product as a result of the change because the inerts in question represent less than [REDACTED] of the total formulation.

Inert ingredient information may be entitled to confidential treatment

Please let me know if you have any questions.

Just a note - when will the Notice of Filing publish in the FR?

Regards,
Chris

-----Original Message-----

From: AdminScanner@certisusa.com [mailto:AdminScanner@certisusa.com]

Sent: Monday, October 25, 2010 11:30 AM

To: Dively, Chris

Subject: You Have Received a New Scan

KM-2560

[00:c0:ee:1d:8d:0d]

[attachment "doc20101025112934.pdf" deleted by Susanne Cerrelli/DC/USEPA/US]



FW: You Have Received a New Scan
Dively, Chris to: Susanne Cerrelli
Cc: "Dively, Chris"

10/25/2010 11:41 AM

Hi Susanne,
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The [REDACTED] have been removed. There is no change in
performance and properties of the end product as a result of the change
because the inerts in question represent less than [REDACTED] of the total
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Please let me know if you have any questions.

Just a note - when will the Notice of Filing publish in the FR?

Regards,
Chris

-----Original Message-----

From: AdminScanner@certisusa.com [mailto:AdminScanner@certisusa.com]
Sent: Monday, October 25, 2010 11:30 AM
To: Dively, Chris
Subject: You Have Received a New Scan

KM-2560
[00:c0:ee:1d:8d:0d]

Inert ingredient information may be entitled to confidential treatment



Re: *Confidential: Fw: You Have Received a New Scan 
Joel Gagliardi to: Susanne Cerrelli
Cc: John Kough

09/14/2010 10:59 AM

Susanne,

I will respond succinctly and I entrust you will convey my responses entirely.

Our guidance for preparing microbial CSFs is on our website. In general, fermentation products that include the ai are listed on line one along with a measure for viability. In most instances the viability measure is the enforceable limit and should be a guaranteed minimum.

[REDACTED]

We do not expect a dry or wet weight of a microbial ai to be put on the CSF unless there is a specific reason to do so, and a method to reliably separate only the ai from other fermentation products. Since most microbial a.i.'s are inseparable from fermentation products they are most often considered and tested in this manner.

In rare instances such as if a toxic product is present after fermentation, there may be a requirement to list this on a separate line of the CSF: see 40CFR158.350(a)(3)

Our guidance for preparing biopesticide CSF is on our webpage with a sample CSF on page 16 of the guidance document: <http://www.epa.gov/pesticides/biopesticides/regtools/biopest-csf.pdf>

Another issue is the inert ingredients. In order to meet the organic certification sought on the label they must be on the old EPA 4a inerts list or EPA 25b list and generally be from a natural source, or qualify separately based on internal guidance. This guidance should be sent to the registrant early in the process where organic certification is sought.

http://www.epa.gov/opprd001/inerts/section25b_inerts.pdf
<http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELPRDC5067226>

Joel

Joel V. Gagliardi, Ph.D.
U.S. Environmental Protection Agency, Mailcode 7511-P
OPPTS, OPP, BPPD, Microbial Pesticides Branch
1200 Pennsylvania Avenue, NW
Washington, DC 20460

703-308-0116 - phone / 703-305-0118 or 703-308-7026 - fax
<http://www.epa.gov/pesticides/biopesticides>

Susanne Cerrelli

Joel- I hope you had a pleasant break! I would li...

09/13/2010 03:49:13 PM

From: Susanne Cerrelli/DC/USEPA/US
To: Joel Gagliardi/DC/USEPA/US@EPA
Date: 09/13/2010 03:49 PM
Subject: *Confidential: Fw: You Have Received a New Scan



Joel-

I hope you had a pleasant break! I would like to consult you tomorrow about the CSF Dively sent me below. It is not exactly what I asked her to do based on your prior explanation of what is needed. I expect not to take more than 10 minutes of your time. Whenever it is convenient for you, I can stop by.

thanks!

Susanne Cerrelli

Regulatory Action Leader
Microbial Pesticides Branch
Biopesticides Pollution Prevention Division (7511P)

703-308-8077(w)

----- Forwarded by Susanne Cerrelli/DC/USEPA/US on 09/13/2010 03:41 PM -----

From: "Dively, Chris" <cdively@certisusa.com>
To: Susanne Cerrelli/DC/USEPA/US@EPA
Cc: "Dively, Chris" <cdively@certisusa.com>
Date: 09/08/2010 04:54 PM
Subject: FW: You Have Received a New Scan

Hi Susanne,

Per your request we have added the [REDACTED] to the active ingredient block on the CSF for CX-9032.

Thank you very much for your patience.

Regards,
Chris

-----Original Message-----

From: AdminScanner@certisusa.com [mailto:AdminScanner@certisusa.com]
Sent: Wednesday, September 08, 2010 4:51 PM
To: Dively, Chris
Subject: You Have Received a New Scan

KM-2560

[00:c0:ee:1d:8d:0d]

[attachment "doc20100908165058.pdf" deleted by Joel Gagliardi/DC/USEPA/US]



Fw: Data Compensation Assistance
Sandra Rock to: Susanne Cerrelli

09/17/2010 11:18 AM

Hi Susanne,

If any resolution is reached on this issue I will let you know. Likewise if you hear anything please let me know. Thanks.

Sandra Rock
Lockheed Martin - ITS-ESE
US EPA Headquarters (S-7941)
Office: (703) 308-6164
e-mail: rock.sandra@epa.gov
TOPO: Kerry Leifer

— Forwarded by Sandra Rock/DC/USEPA/US on 09/17/2010 11:17 AM —



Data Compensation Assistance

Sandra Rock to: Dively, Chris

09/17/2010 09:06 AM

Hi Chris,

First - yes, the inert ingredients requiring data compensation are approved for food use. So the data compensation issue is the only one that you need to cope with.

The person best equipped to answer your questions regarding the specifics of data compensation is Jim Messina. He is the contact for the Joint Inerts Task Force (JITF) and may be reached by phone (202) 772-4932, or via e-mail at jmessina@exponent.com. He should be able to adequately explain the relationship between the JITF and the EPA, as well as provide the details on the ways in which compensation may be achieved. You may tell him that the inert ingredients for which you are seeking assistance with are substances included in [REDACTED].

If after speaking with Mr. Messina you have further questions regarding the EPA role in the data compensation issue with regard to inert ingredients you may contact Kerry Leifer here at EPA (703) 308-8811, via e-mail at leifer.kerry@epa.gov.

When you are successful in locating chemical manufacturers that are willing to deal with the data compensation requirements you may have them contact me and hopefully we will get your inerts approved.

Sandra Rock
Lockheed Martin - ITS-ESE
US EPA Headquarters (S-7941)
Office: (703) 308-6164
e-mail: rock.sandra@epa.gov
TOPO: Kerry Leifer

Inert ingredient information may be entitled to confidential treatment

Data Screen for Nontarget Organism Data Requirements for *Bacillus subtilis* var.
amyloliquefaciens strain D747
Shannon Borges, 9/16/2010

The data package for *Bacillus subtilis* var. *amyloliquefaciens* strain D747 provides studies that address the following Tier I Nontarget Organism data requirements:

- Avian oral toxicity/pathogenicity
- Freshwater fish toxicity/pathogenicity
- Freshwater invertebrate toxicity/pathogenicity
- Nontarget plant testing
- Nontarget insect testing
- Honey bee testing

No studies or data waiver rationale were submitted to specifically address the wild mammal toxicity/pathogenicity; however, according to the data matrix, an acute oral toxicity/pathogenicity with laboratory mammals has been submitted. This study should be sufficient for use in wild mammal risk assessment, and no additional studies are required at this time to address that data requirement.

A study or waiver rationale for avian inhalation toxicity/pathogenicity has not been submitted. The results of the avian oral toxicity/pathogenicity test indicate that *B. subtilis* var. *amyloliquefaciens* strain D747 is not toxic or pathogenic to birds, and *B. subtilis* var. *amyloliquefaciens* is not known to be an inhalation risk to birds. Therefore, a study or data waiver rationale to address the avian inhalation toxicity/pathogenicity data requirement is not needed at this time.

A study or waiver rationale for marine/estuarine fish and invertebrate testing has also not been submitted. The studies submitted for freshwater fish toxicity/pathogenicity and freshwater invertebrate toxicity/pathogenicity indicate, upon brief examination, that adverse effects occur at the concentrations tested. However, it has not been determined yet whether exposure in marine/estuarine environments will be significant and whether exposure will be high enough to result in adverse effects in aquatic environments. This will be determined in the risk assessment, and if adverse effects to marine/estuarine fish and invertebrates is suspected, then additional testing may be required after this determination is made. Studies or data waiver rationale are not required for the marine/estuarine fish and invertebrate testing data requirement at this time.

Based on this preliminary screen, the data package submitted to address the nontarget organism data requirements is complete and can be placed in review.

Chris Dively

phone conversation

9/2/2010

[REDACTED]

In 2007 - IIAB met and
CPT indicated would work on getting compensation.

[REDACTED]

Contractor indicated data-comp issue

[REDACTED]

NO FR or PR notice about this

Soel - CST, request [REDACTED]
to be added CX-9032 CST

From Joel's screen

9/2/10

Let her know
that likely won't be "organic"
will thus change the plan

→ ON CSF Both CSFs need
9032 → appears to be original

would like [redacted] on separate line
in CSF

→ Joel will check w/ John @
lack of clearance in our study
injection + inhalation

but organic review

- YH

- natural source



Data Compensation and Inert Ingredients (w/o CBI)

Jeannine Kausch to: Dively, Chris

Bcc: Susanne Cerrelli

08/23/2010 12:05 PM

Hi Chris,

I tried calling you this morning (Monday, August 23, 2010) but was only able to leave a message. Since I was unable to talk with you directly, I figured it best to get you this information so you have a better understanding of the issue and can initiate the first step needed to reach a timely resolution.

After talking with members of the Inert Ingredient Assessment Branch (IIAB), I understand, for the most part, what is going on with the data compensation issue and the proprietary mixture in your recently submitted products (specifically, see FFDCA sec. 408(i)). Although this email is quite lengthy because of the complexity of the issue, no confidential business information (CBI) is contained in the text that follows.

1) Background:

In the process of completing reassessment of all of the inert ingredient tolerance exemptions (pursuant to FFDCA sec. 408(q) and by August 2006), the Agency found that it did not have sufficient data to make determinations of safety, required by FFDCA sec. 408(b)(2), for certain chemicals. Therefore, in the Federal Register of August 9, 2006 (<http://edocket.access.gpo.gov/2006/pdf/E6-12877.pdf>), the exemptions for these inert ingredients were revoked, most with an effective date of August 9, 2008. In 2007, affected members of industry formed the "Joint Inerts Task Force." The goal of this group was to develop data that would permit the Agency to reinstate some of the tolerance exemptions that were revoked in the August 9, 2006 Rule (more explanation provided in a November 2, 2007 Federal Register Notice: <http://edocket.access.gpo.gov/2007/pdf/E7-21594.pdf>). Because there were many different chemicals requiring data generation, the Agency agreed to lump certain chemicals into "cluster groups" based on similar toxicological properties (i.e., data generated on one chemical could serve to support several other chemicals). Within each of these cluster groups, there are companies (manufacturers of chemicals with exemptions that were subject to revocation) that have agreed to pay, to some extent, for generation of the data needed by the Agency to make the relevant determinations of safety under FFDCA sec. 408(b)(2). As such, pursuant to FFDCA sec. 408(i), follow-on manufacturers using chemicals in a particular cluster group must either purchase their supply from one of the data doers or the cluster group of data doers must provide authorization to the particular manufacturer to use the chemical.

2) How Does This Inert Ingredient Matter Relate to Certis USA LLC's (Certis) New Applications?:

During the 21-day screen of your new product applications, the Agency noted that Certis' formulations contain a proprietary mixture manufactured by [REDACTED]. This creates a problem because the proprietary mixture contains a chemical component that is a part of one of the cluster groups (i.e., data were generated by certain companies to support its tolerance exemption), and [REDACTED] the subject proprietary mixture, has not made an offer to pay to the original data doers or obtained authorization from them; therefore, as it stands now, [REDACTED] cannot be used in Certis' formulations (for food use purposes) until [REDACTED] pays the individuals in the appropriate cluster group or obtains their authorization.

3) How to Resolve this Issue:

Because this issue has many CBI complexities, IIAB has advised that you contact [REDACTED] responsible for selling Certis the proprietary mixture and have them get in touch with IIAB via email (inertsbranch@epa.gov) as soon as possible. IIAB has also relayed to me that, once the process is started [REDACTED] contacts IIAB), then any outstanding data compensation issue should be resolved relatively quickly...most certainly by the PRIA due date for your applications. [REDACTED] resolution with the data doers of their chemical's cluster group, then, as a last resort, the regulatory action leader for your new products may ask you to replace [REDACTED] with a chemical that is

Product ingredient source information may be entitled to confidential treatment

21-Day Screen Completed by
Contractor

21-Day Expires on 8-16-10

Jacket # 70051-RNT
MRID# 481655

Content Screen: Recommended to
Pass/Fail

86-5 Review: Passed/Failed/NA

Transfer This Jacket to:

SHERYL REILY

PRIA 2 – 21 Day Content Screen Review Worksheet

(EPA/OPP Use Only)

3/23/09

21 Day Screen Start Date: 7-26-10

Experts In-Processing Signature: B. R.

Date 7-29-10

Fee Paid: Yes ☒

Division management contacted on issues No ☐ Yes ☐ Date _____

EPA Reg. Number: <u>70051-RNT</u>		EPA Receipt Date: <u>7-26-10</u>				
Items for Review				Yes	No	N/A*
1	Application Form (EPA Form 8570-1)(link to form) signed & complete including package type			<input checked="" type="checkbox"/>		
2	Confidential Statement of Formula all boxes completed, form signed, and dated (EPA Form 8570-4) (Link to form)			<input checked="" type="checkbox"/>		
	a) All inerts (link to http://www.epa.gov/opprd001/inerts/), including fragrances, approved for the proposed uses (see Footnote A) <u>* See CSE *</u>	yes	no			
			<input checked="" type="checkbox"/>			
3	Certification with Respect to Citation of Data (EPA Form 8570-34) (Link to form) completed and signed (N/A if 100% repack)			<input checked="" type="checkbox"/>		
	Certificate and data matrix consistent			<input checked="" type="checkbox"/>		
	If applicant is relying on data that are compensable, is the offer to pay statement included. (see Footnote B)	yes	no			
	If applicable, is there a letter of Authorization for exclusive use only.					
4	Formulator's Exemption Statement (EPA Form 8570-27) (Link to form) completed and signed (N/A if source is unregistered or applicant owns the technical)					<input checked="" type="checkbox"/>
	Data Matrix (EPA Form 8570-35) (Link to form) both internal and external copies (PR 98-5) (Link to PR 98-5) completed and signed (N/A if 100% repack)			<input checked="" type="checkbox"/>		
5	a) Selective Method (Fee category experts use)	yes	no			
		<input checked="" type="checkbox"/>				
	b) Cite-All (Fee category experts use)					
	c) Applicant owns all data (Fee category experts use)					
6	5 Copies of Label (link to http://www.epa.gov/oppead1/labeling/lrm/) (Electronic labels on CD are encouraged and guidance is available)(link to http://www.epa.gov/pesticides/regulating/registering/submissions/index.htm#labels)			<input checked="" type="checkbox"/>		

7	Is the data package consistent with PR Notice 86-5 (link to PRN 86-5)	X		
8	Notice of Filing (link to http://www.epa.gov/pesticides/regulating/tolerance_petitions.htm) included with petitions (link to http://www.epa.gov/pesticides/regulating/tolerances.htm)			X
9	If applicable for conventional applications, reduced risk rationale (link to http://www.epa.gov/opprd001/workplan/reducedrisk.html)			X
10	Required Data (link to http://www.epa.gov/pesticides/regulating/data_requirements.htm) and/or data waivers. See Footnote C.			
	a) List study (or studies) not included with application			

Comments:

Passed 86-5 Review. MRID 481655

7/30 - Spoke with registrant and sent an e-mail regarding deficiencies.

8/7 - Received corrections.

Inerts not approved because of
data compensation.

481655

* N/A – Not Applicable

Footnotes

A. During the 21 day initial content review, all CSFs will be reviewed to determine whether all inerts listed, including fragrances, are approved for the proposed uses. If an unapproved inert is identified, the applicant must either 1) resolve the inert issue by, for example, removing the inert, substituting it with an approved inert, submitting documentation that EPA approved the inert for the proposed pesticidal uses, correcting mistakes on the CSF, etc. or 2) provide the data to support OPP approval of the inert or 3) withdraw the application. Removing or substituting an inert ingredient will require a new CSF and may require submission of data. All information, forms, data and documentation resolving the inert issue must have been received by the Agency or the application withdrawn within the 21 day period, otherwise, the Agency will reject the application as described below.

To successfully complete this aspect of the 21 day initial content screen, applicants are **strongly encouraged** to verify that all inert ingredients have been approved for the application's uses **even if a product is currently registered** by consulting the inert Web

site [link to <http://www.epa.gov/opprd001/inerts/lists.html>] and if the inert is not approved, to **obtain the necessary inert approval prior to submitting an application to register a pesticide product containing that inert ingredient.** Some inert ingredients are no longer approved for food uses or certain types of uses. The name and/or CAS number on a CSF must match the name and CAS number on this web site. Simple typographical errors in the name or CAS number have resulted in processing delays.

If an inert is not listed on the inert ingredient web site and the applicant believes that the inert has been approved, the applicant should contact the Inert Ingredient Assessment Branch (IIAB) at inertsbranch@epa.gov and resolve the issue. Copies of the correspondence with IIAB resolving the issue should accompany the application. All new inerts except PIP inerts are reviewed by IIAB. The IIAB should also be contacted for any questions on what supporting data needs to be submitted for and the Agency's inert review process. Questions on PIP inerts should be directed to the Chief of Microbial Pesticides Branch [Link to http://www.epa.gov/oppbppd1/biopesticides/contacts_bppd.htm].

When a brand, trade, or proprietary name of an inert ingredient is listed on a CSF, additional information such as an alternate name of the inert, CAS number or other information [link to <http://www.epa.gov/opprd001/inerts/tips.pdf>] must also be included to enable the Agency to determine if it has been approved. Each component of an inert mixture (including a fragrance) must be identified. In some cases, the supplier of the mixture or fragrance may need to provide this information to the Agency. Prior to the Agency's receipt of an application, applicants must arrange with a proprietary mixture or fragrance supplier to provide the component information to the Agency or promptly upon EPA's request. If the inert ingredients in a proprietary blend (including fragrances) cannot or are not identified or provided within the 21-day content review period, the Agency will reject the application.

During the 21 day content review, applicants should submit information to the individual identified by the Agency when the applicant is informed of an unapproved inert.

Unapproved Inerts Identified on CSFs

All applications except conventional new products and PIPs

Once an unapproved inert is identified on a CSF, the Agency will contact the applicant with the following options:

1. Correct the application by, for instance, correcting the inert's identity or CAS number, providing documentation that the inert has been approved, or removing the unapproved inert from the CSF or replacing it with one that is approved for the application's uses; or
2. Submit the information and data needed for the Agency to approve the unapproved inert. If this option is selected and implemented, the Agency may request an extension in the PRIA decision review timeframe to accommodate the inert review/approval process;

3. Withdraw the application (the Agency retains 25% of the full fee for the fee category estimated); or

If none of these options is selected and implemented by the applicant within the 21 day content review period, the Agency will reject the application and retain 25% of the full fee of the category identified.

Conventional New Product Applications

When the Registration Division identifies an unapproved inert on a CSF with an application for a new product that the applicant has not identified as requiring an inert approval (R311, R312 or R313), it will contact the applicant with the following options:

1. Correct the application by, for instance, correcting the inert's identity or CAS number, providing documentation that the inert has been approved, or removing the unapproved inert from the CSF or replacing it with one that is approved for the application's uses; or
2. Submit the information and data needed for the Agency to approve the unapproved inert, including any required petition to establish or amend a tolerance or exemption from a tolerance. (This option may change the PRIA category for the application, which could require a longer decision review time and a larger fee. If additional fees are due, they must be received by the Agency within the 21 day content review period.)
3. Withdraw the application (the Agency retains 25% of the full fee for the fee category estimated); or

If none of the above options is selected and implemented during the 21-day content-review period, the Agency will reject the application and retain 25% of the appropriate fee for the new product-inert approval category.

PIP Applications

When the Biopesticide and Pollution Prevention Division identifies an unapproved inert on a PIP CSF and a request to approve the inert does not accompany the application, it will contact the applicant with the following options:

1. Correct the application by, for instance, correcting the spelling or name of the inert to that in 40 CFR 174, or providing documentation that the inert has been approved; or
2. Submit the information and data needed for the Agency to approve the unapproved inert. If an inert ingredient tolerance exemption petition is required, the petition must be received by the Agency and the B903 fee paid within the 21 day period. If this option is selected and implemented, the Agency will discuss harmonizing the timeframe for both actions.

3. Withdraw the application (the Agency retains 25% of the full fee for the fee category estimated); or

If none of the above options is selected and implemented during the 21 day content review period, the Agency will reject the application and retain 25% of the fee.

B. A policy on documentation of offers to pay is still being developed, however, for a me-too or fast track (similar/identical) new product, R300 or A530, an application without the necessary authorizations of offers to pay will be placed into either R301 or A531. The Agency recommends that authorizations of offers to pay be submitted with other PRIA applications to avoid delays in the Agency's decision.

C. Biopesticide applicants are advised to contact the Agency and discuss study waivers prior to submitting their application to the Agency. Documentation of such discussions should be submitted with the study waiver.

Script for Rejection Phone calls

Contact Name: Christine Dively
Phone #: 301-483-3806
Email: cdively@certisusa.com

First Call/Initials:

Date: 7/30
Time: 9:45

Second Call/Initials:

Date:
Time:

This is _____, EPA contractor.

I'm calling regarding your submission in support of

70051- RNT, RNI.

We have found the following deficiencies regarding:

PR Notice 86.5: Yes or No

Volume/Study Title:

Volume/Study Title:

Volume/Study Title:

Additional volumes continued on back of page: Yes or No

Application Package: Yes or No

Both - Certification - "selective method" should be selected
RNT - insert on CSF has wrong CAS #

These deficiencies have been approved by EPA.

The corrections can be faxed to 703-305-5060/Attn: _____.

Second Call/Email:

If we do not receive the corrections by _____, we will process your submission, accordingly. Please direct all future calls and correspondence to the appropriate EPA Risk Manager.

ISB'S Front-end PRIA Completeness Screen

Draft 3; 10/25/07

EPA Receipt Date: JUL 26 2010		EPA Reg. Number: 70051-RNT		
	Check List Item	Yes	No	N/A
1	Has the PRIA Fee been Paid ; is a copy of the check or Pay.gov receipt included in the Submission Package?		X	
2	Is an Application Form (EPA Form 8570-1) Included in the Submission Package, is it completely filled out and signed including package type?	X		
3	Is a Confidential Statement of Formula (EPA Form 8570-29) Included in the Submission Package, is it completely filled out and signed (boxes 1-21)?	X		
4	Is a Formulator's Exemption Statement (EPA Form 8570-27) Included in the Submission Package?		X	
5	Is a Certification with Respect to Citation of Data (EPA Form 8570-34) Included in the Submission Package?	X		
6	Is a Data Matrix (EPA Form 8570-35) Included in the Submission Package?	X		
7	Is a Label Included in the Submission Package?	X		
8	Are Data Included in the Submission Package?	X		
9	Is the Submission an Amendment?			



CX-9032 (70051-RNT)

Tracy Jackson to: cdively

Cc: InertsBranch, rock.sandra, Sree Nair

08/04/2010 10:05 AM

From: Tracy Jackson/DC/USEPA/US
To: cdively@certisusa.com
Cc: InertsBranch@EPA, rock.sandra@epamail.gov, Sree Nair/DC/USEPA/US@EPA

Dear Ms. Dively,

I am contacting you regarding your submission of **CX-9032 (70051-RNT)**. There is a deficiency on both the Basic and Alternate Confidential Statement of Formula.

Based on the compositional information in the Agency's proprietary inert mixture database, there are one or more inert ingredients in a (**surfactant**) for which data protection rights have been asserted and for which the Agency must ensure such rights are protected in the pesticide registration process. In order for the Agency to make a determination as to the acceptability of this proprietary mixture for use as an inert ingredient in food use pesticide formulations, further documentation is required from the manufacturer. The product manufacturer can get specific information on the chemicals in question and the documentation required to determine acceptability for data compensation by contacting the Inert Ingredient Assessment Branch at InertsBranch@epamail.epa.gov

Please open document below:



Inert Status form.doc

Thank you

Tracy Jackson
Macfadden/EPA Contractor
2777 S. Crystal Drive
Arlington, VA 22202
703-308-7227
jackson.tracy@epa.gov



Registration Applications 70051-RNT and RNI

Jennifer Drobish to: cdively

Cc: Sree Nair

07/30/2010 09:44 AM

Ms Dively,

This is Jennifer Drobish, EPA contractor. I'm writing in regards to your submissions in support of the subject registrations. We have found the following deficiencies regarding the application packages:

- for both RNT and RNI, on the Certifications with Respect to Citation of Data the "selective method" should be selected.
- for RNT, the CSF has a CAS # that is not in our database. This could be a typo as I have found the ingredient with a different CAS #. Please see the attached form regarding this inert ingredient.

These corrections can either be faxed to me at 703-305-5060/Attn: Jennifer Drobish or emailed to me at drobish.jennifer@epa.gov

Thank you,
Jennifer Drobish
EPA Contractor
703-305-1671



FW: You Have Received a New Scan

Dively, Chris to: Jennifer Drobish

Cc: "Dively, Chris"

08/02/2010 05:31 PM

Jennifer,

Per your request, please find attached the revised

CSF for 70051-RNT and the revised

Certification with Respect to Citation of Data Form for both 70051-RNT and RNI.

Regards,

Chris

-----Original Message-----

From: AdminScanner@certisusa.com [mailto:AdminScanner@certisusa.com]

Sent: Monday, August 02, 2010 5:16 PM

Cc: Dively, Chris

Subject: You Have Received a New Scan

KM-2560

[00:c0:ee:1d:8d:0d]



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

July 28, 2010

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

OPP Decision Number: D-437757
EPA File Symbol or Registration Number: 70051-RNT
Product Name: CX-9032
EPA Receipt Date: 26-Jul-2010
EPA Company Number: 70051
Company Name: CERTIS USA, LLC

CHRISTINE A. DIVELY
CERTIS USA, LLC
9145 GUILFORD ROAD, SUITE 175
COLUMBIA, MD 21046

SUBJECT: Receipt of Registration Application Subject to Registration Service Fee

Dear Registrant:

The Office of Pesticide Programs has received your application and certification of payment. If you submitted data with this application, the results of the PRN-86-5 screen will be communicated separately. During the administrative screen, the Office of Pesticide Programs has determined that this Action is subject to a Pesticide Registration Service Fee as defined in the Pesticide Registration Improvement Act.

The Action has been identified as Action Code: B590.0

NEW AI;FOOD USE;MICROBIAL/BIOCHEMICAL WITH EXEMPTION;

No additional payment is due at this time.

If you have any questions, please contact the Pesticide Registration Service Fee Ombudsman at (703) 305-7973.

Sincerely, *Teresa Downs*
Front End Processing Staff
Information Technology & Resources Management Division

Fee for Service

{879169}~

This package includes the following

- ☒ New Registration
- ☐ Amendment

☒ Studies? ☐ Fee Waiver?
☐ volpay % Reduction: _____

for Division

- ☐ AD
- ☒ BPPD
- ☐ RD

Risk Mgr. 92

Receipt No.

S-

879169

EPA File Symbol/Reg. No.

70051-RNT

Pin-Punch Date:

7/26/2010

☐ This item is NOT subject to FFS action.

Action Code:

Requested:

B590

Granted:

B590.0

Amount Due: \$ /

Parent/Child Decisions:

Primary = 70051-RNT

Act. = 0F7760

☐ Inert Cleared for Intended Use

☐ Uncleared Inert in Product

Reviewer: *S. Bailey*

Date: *7/28/10*

Remarks:

Receipt for Section 3

S: 879169

Resubmission: ☐ Yes ☒ No

Regulatory Type: Product Registration - Section 3

Fee For Service: ☒ Yes ☐ No

Application Type: New Registration

Billable: ☒ Yes ☐ No

Company: 70051 CERTIS USA, LLC V

Risk Manager: Biologicals & Pollution Prevention Division, PM Team 92

Product #: 70051-RHT Product Name: CX-9032

Override#:

Me Too Section3: Me Too Product Name:

Application Date: 14-Jul-2010 ie

OPP Rec'd Date: 26-Jul-2010 ie

Front End Date: 27-Jul-2010 ie

Risk Manager Send Date: ie

FFS Due Date:

Negotiated Due Date:

OPP Target Date:

Fast Track: ☐

New Ingredient: ☐

Receipt Description:

New product registration application

New Ingredient Request Date:

New Ingredient Received Date:

Form A: ☐ Signature Date:

Form B: ☐ Signature Date:

Print Letter

Enter More Information

Tracking

Receipt Content

Study

CSF

View/Edit

FEE FOR SERVICE



United States
Environmental Protection Agency
Washington, DC 20460

☒ Registration
☐ Amendment
☐ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 70051 - RNT	2. EPA Product Manager Microbial Pesticides Branch	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) CX-9032	PM# Alan Reynolds	
5. Name and Address of Applicant (Include ZIP Code) Certis U.S.A., L.L.C. 9145 Guilford Road, Suite 175 Columbia, MD 21046 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.
<input type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

New product registration application containing a new active ingredient (Secondary Registration Application)

Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		<input checked="" type="checkbox"/> Metal	<input type="checkbox"/> Plastic
* Certification must be submitted				<input type="checkbox"/> Glass	<input type="checkbox"/> Paper
If "Yes" Unit Packaging wgt. No. per container		If "Yes" Package wgt. No. per container		Other (Specify) _____	
3. Location of Net Contents Information <input checked="" type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 2.5 Gallon		5. Location of Label Directions <input checked="" type="checkbox"/> On Label <input type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed to Product <input checked="" type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled			<input type="checkbox"/> Other _____		

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)					
Name Christine Dively		Title Director, Regulatory		Telephone No. (Include Area Code) 301-483-3806	
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.					6. Date Application Received (Stamped)
2. Signature Christine A. Dively		3. Title Director, Regulatory			
4. Typed Name Christine Dively		5. Date July 12, 2010			



Certis USA
9145 Guilford Road
Suite 175
Columbia, MD 21046
(301) 604-7340
FAX: 301-604-7015
www.certisusa.com

July 14, 2010

Dr. Sheryl Reilly, Chief
Microbial Pesticides Branch
Biopesticides and Pollution Prevention Division (7504P)
Office of Pesticide Programs
US Environmental Protection Agency
Room S-4900, One Potomac Yard
2777 South Crystal Drive
Arlington, VA 22202-4501

**Re: Certis U.S.A., L.L.C. / EPA Company Number: 70051
Transmittal Document
New Product Registration Application Containing New Active Ingredient
(Secondary Registration Application)
PRIA Category B590**

Dear Dr. Reilly:

On behalf of Certis U.S.A., L.L.C. (9145 Guilford Road, Suite 175, Columbia, MD 21046), I am respectfully submitting documents to support the registration of a new end-use product containing the new active ingredient *Bacillus subtilis* var. *amyloliquefaciens* strain D747. The registration application contains two products with the same new active ingredient, a primary and secondary end-use product. Data submitted under this cover supports the secondary end-use formulation.

Included with this submission are the following administrative and data volumes:

Volume I – Administrative Materials

- Application for Pesticide Product; EPA Form 8570-1
- Confidential Statements of Formula; EPA Form 8570-4
- Data Matrix – non-confidential; EPA Form 8570-35
- Data Matrix –confidential; EPA Form 8570-35
- Certification with Respect to Citation of Data; EPA Form 8570-34
- Five Copies of Draft Labeling

Volume II – Product Chemistry

- OPPTS 885.1100 Product Identity
- OPPTS 885.1200 Manufacturing Process
- OPPTS 885.1300 Discussion of formation of unintentional ingredients
- OPPTS 885.1400 Analysis of samples
- OPPTS 885.1500 Certification of Limits

Volume III – Product Properties

- OPPTS 830.6302 Color
- 830.6303 Physical State
- 830.6304 Odor
- OPPTS 830.6313 Stability to Normal and Elevated Temperatures, Metals, and Metal Ions
- OPPTS 830.6317 Storage Stability of the Liquid Concentrate
- OPPTS 830.6319 Miscibility
- OPPTS 830.6320 Corrosion Characteristics
- OPPTS 830.7000 pH
- OPPTS 830.7100 Viscosity
- OPPTS 830.7300 Bulk Density

Volume IV – Product Properties

- 830.6317 Storage Stability of the End-use Product

Volume V – Toxicology Data

- OPPTS 870.1100 Acute Oral Toxicity Request for No Further Testing
- OPPTS 870.1200 Acute Dermal Toxicity Request for No Further Testing
- OPPTS 870.1300 Acute Inhalation Toxicity Request for No Further Testing
- OPPTS 885.3400 Hypersensitivity Request for No Further Testing

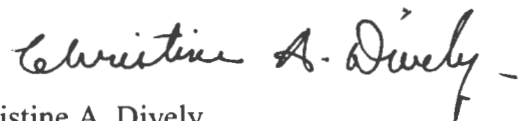
Volume VI – OPPTS 870.2400 Acute Eye Irritation Study in Rabbits

Volume VII – OPPTS 870.2500 Acute Dermal Irritation Study in Rabbits

As stated previously in this transmittal letter, this registration application is for the secondary formulation of a new end-use product containing the new active ingredient *Bacillus subtilis* var. *amyloliquefaciens* strain D747

Please do not hesitate to contact me if you have any questions about this submission. I can be contacted by telephone at 301-483-3806 or by email at cdively@certisusa.com.

Respectfully,

A handwritten signature in black ink that reads "Christine A. Dively". The signature is written in a cursive style with a horizontal line at the end.

Christine A. Dively
Director of Regulatory Affairs



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
1200 Pennsylvania Avenue, N.W.
WASHINGTON, D.C. 20460

Paperwork Reduction Act Notice: The public reporting burden for this collection of information is estimated to average 1.25 hours per response for registration and 0.25 hours per response for reregistration and special review activities, including time for reading the instructions and completing the necessary forms. Send comments regarding burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden to: Director, Collection Strategies Division (2822T), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, N.W., Washington, DC 20460. Do not send the completed form to this address.

Certification with Respect to Citation of Data

Applicant's/Registrant's Name, Address, and Telephone Number Certis U.S.A., L.L.C. 9145 Guilford Road, Suite 175, Columbia, Maryland 21046	EPA Registration Number/File Symbol 70051-RNT
Active Ingredient(s) and/or representative test compound(s) Bacillus subtilis var. amyloliquefaciens strain D-747	Date July 12, 2010
General Use Pattern(s) (list all those claimed for this product using 40 CFR Part 158) Agricultural, Ornamental and Residential Applications	Product Name CX-9032

NOTE: If your product is a 100% repackaging of another purchased EPA-registered product labeled for all the same uses on your label, you do not need to submit this form. You must submit the Formulator's Exemption Statement (EPA Form 8570-27).

☐ I am responding to a Data-Call-In Notice, and have included with this form a list of companies sent offers of compensation (the Data Matrix form should be used for this purpose).

SECTION I: METHOD OF DATA SUPPORT (Check one method only)

<input type="checkbox"/> I am using the cite-all method of support, and have included with this form a list of companies sent offers of compensation (the Data Matrix form should be used for this purpose).	<input checked="" type="checkbox"/> I am using the selective method of support (or cite-all option under the selective method), and have included with this form a completed list of data requirements (the Data Matrix form must be used).
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SECTION II: GENERAL OFFER TO PAY

[Required if using the cite-all method or when using the cite-all option under the selective method to satisfy one or more data requirements]

☐ I hereby offer and agree to pay compensation, to other persons, with regard to the approval of this application, to the extent required by FIFRA.

SECTION III: CERTIFICATION

I certify that this application for registration, this form for reregistration, or this Data-Call-In response is supported by all data submitted or cited in the application for registration, the form for reregistration, or the Data-Call-In response. In addition, if the cite-all option or cite-all option under the selective method is indicated in Section I, this application is supported by all data in the Agency's files that (1) concern the properties or effects of this product or an identical or substantially similar product, or one or more of the ingredients in this product; and (2) is a type of data that would be required to be submitted under the data requirements in effect on the date of approval of this application if the application sought the initial registration of a product of identical or similar composition and uses.

I certify that for each exclusive use study cited in support of this registration or reregistration, that I am the original data submitter or that I have obtained the written permission of the original data submitter to cite that study.

I certify that for each study cited in support of this registration or reregistration that is not an exclusive use study, either: (a) I am the original data submitter; (b) I have obtained the permission of the original data submitter to use the study in support of this application; (c) all periods of eligibility for compensation have expired for the study; (d) the study is in the public literature; or (e) I have notified in writing the company that submitted the study and have offered (i) to pay compensation to the extent required by sections 3(c)(1)(F) and/or 3(c)(2)(B) of FIFRA; and (ii) to commence negotiations to determine the amount and terms of compensation, if any, to be paid for the use of the study.

I certify that in all instances where an offer of compensation is required, copies of all offers to pay compensation and evidence of their delivery in accordance with sections 3(c)(1)(F) and/or 3(c)(2)(B) of FIFRA are available and will be submitted to the Agency upon request. Should I fail to produce such evidence to the Agency upon request, I understand that the Agency may initiate action to deny, cancel or suspend the registration of my product in conformity with FIFRA.

I certify that the statements I have made on this form and all attachments to it are true, accurate, and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

Signature <i>Christine A. Dively</i>	Date 7/12/10	Typed or Printed Name and Title Christine A. Dively
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
401 M Street, S.W.
WASHINGTON, D.C. 20460

Form Approved OMB No. 2070-0060

Paperwork Reduction Act Notice: The public reporting burden for this collection of information is estimated to average 0.25 hours per response for registration activities and 0.25 hours per response for reregistration and special review activities, including time for reading the instructions and completing the necessary forms. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden to: Director, OPPE Information Management Division (2137), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, DC 20460. Do not send the form to this address.

DATA MATRIX

Date 7/14/2010		EPA Reg No./File Symbol		Page 1 of 2	
Applicant's/Registrant's Name & Address Certis U.S.A., L.L.C., 9045 Guilford Road, Suite 175, Columbia, MD 21046		Product CX-9032			
Ingredient Bacillus subtilis var. amyloliquefaciens					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
885.1100	Product Identity		Certis USA	Own	Refer to CX-9030
885.1200	Manufacturing process		Certis USA	Own	
885.1300	Discussion of formation of unintentional ingredients		Certis USA	Own	
885.1400	Analysis of samples		Certis USA	Own	
885.1500	Certification of limits		Certis USA	Own	
830.6302	Color		Certis USA	Own	
830.6303	Physical state		Certis USA	Own	
830.6304	Odor		Certis USA	Own	
830.6313	Stability to normal and elevated temperatures, metals and		Certis USA	Own	
830.6317	Storage stability		Certis USA	Own	
830.6319	Miscibility		Certis USA	Own	
830.6320	Corrosion Characteristics		Certis USA	Own	
830.7000	pH		Certis USA	Own	
830.7100	Viscosity		Certis USA	Own	
830.7300	Density/relative density/bulk density (specific gravity)		Certis USA	Own	
Signature <i>Christine A. Dively</i>			Name and Title Christine Dively, Director of Regulatory Affairs		Date <i>July 19, 2010</i>



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
401 M Street, S.W.
WASHINGTON, D.C. 20460

Form Approved OMB No. 2070-0060

Paperwork Reduction Act Notice: The public reporting burden for this collection of information is estimated to average 0.25 hours per response for registration activities and 0.25 hours per response for reregistration and special review activities, including time for reading the instructions and completing the necessary forms. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden to: Director, OPPE Information Management Division (2137), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, DC 20460. Do not send the form to this address.

DATA MATRIX

Date 7/14/2010		EPA Reg No./File Symbol		Page 2 of 2	
Applicant's/Registrant's Name & Address Certis U.S.A., L.L.C., 9045 Guilford Road, Suite 175, Columbia, MD 21046		Product CX-9032			
Ingredient Bacillus subtilis var. amyloliquefaciens					
Guideline Reference Number	Guideline Study Name	MRID Number	Submitter	Status	Note
885.3050	Acute oral toxicity/pathogenicity		Certis USA	Own	Refer to CX-9030
885.3150	Acute pulmonary toxicity/pathogenicity		Certis USA	Own	Refer to CX-9030
885.3200	Acute injection toxicity/pathogenicity/(intravenous)		Certis USA	Own	Refer to CX-9030
885.3400	Hypersensitivity incidents		Certis USA	Own	
870.1100	Acute oral toxicity		Certis USA	Own	
870.1200	Acute dermal toxicity		Certis USA	Own	
870.1300	Acute inhalation toxicity		Certis USA	Own	
870.2400	Acute eye irritation		Certis USA	Own	
870.2500	Primary dermal irritation		Certis USA	Own	
885.4050	Avian oral toxicity		Certis USA	Own	Refer to CX-9030
885.4200	Freshwater fish toxicity/ pathogenicity		Certis USA	Own	Refer to CX-9030
885.4240	Freshwater invertebrate toxicity/pathogenicity		Certis USA	Own	Refer to CX-9030
885.4300	Nontarget plant testing		Certis USA	Own	Refer to CX-9030
885.4340	Nontarget insect testing		Certis USA	Own	Refer to CX-9030
885.4380	Honey bee testing		Certis USA	Own	Refer to CX-9030
Signature <i>Christine A. Dively</i>			Name and Title Christine Dively, Director of Regulatory Affairs		Date <i>July 13, 2010</i>

EPA Form 8570-35 (9-97) Electronic and Paper versions available. Submit only Paper version.

Agency Internal Use Copy

MASTER LABEL
SUBLABEL A: Agricultural Use

CX-9032

Aqueous Suspension Biofungicide/Bactericide

FOR ORGANIC PRODUCTION

Active Ingredient:

Bacillus subtilis var. *amyloliquefaciens* strain D747* 98.35%

Other Ingredients 1.65%

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS:

Lot No.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID

IF ON SKIN: Take off contaminated clothing. Rinse skin with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice.

IF IN EYES: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Have the product label with you when calling a poison control center or doctor.

Hot Line No.: 1-800-255-3924

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS & DOMESTIC ANIMALS

CAUTION

Harmful if absorbed through skin. Harmful if inhaled. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin, eyes, or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- NIOSH approved respirator with any N, P, R or HE filter

Follow manufacturer's instructions for cleaning and maintaining PPE. If no instructions are available, use detergent and hot water for washables. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides, the handler PPE requirements may be reduced or modified as specified in the WPS.

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticides get inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

Do not apply directly to water or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Do not apply when weather conditions favor drift or runoff from treated areas.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water is: cover-alls, waterproof gloves, shoes plus socks.

Exception: If the product is soil injected or soil incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

Pesticide Storage: Store in a dry area inaccessible to children. Store in original containers only. Keep container closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of onsite or at an approved waste disposal facility.

Container Handling: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling, if available or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus subtilis* var. *amyloliquefaciens*. CX-9032 kills pathogenic organisms on foliage and other plant parts by producing antibiotic compounds (iturins) which disrupt pathogen cell wall production. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

CX-9032 can be applied alone or in combination and/or rotation with chemical fungicides as a tool for integrated disease management in agricultural crops, ornamental and nursery plants, and turfgrass. CX-9032 offers a valuable tool for management of resistance to chemical fungicides through its multiple and unique modes of action.

CX-9032 is exempt from the requirement for residue tolerance and therefore can be applied up to and including the day of harvest.

CX-9032 complies with the USDA National Organic Program (NOP) and is listed by the Organic Materials Review Institute (OMRI) for use in organic production.

MIXING AND HANDLING INSTRUCTIONS

Mix the required amount of CX-9032 in water with sufficient agitation to maintain a uniform suspension in the spray or mixing tank. Tank should be cleaned prior to use. Do not use highly alkaline or highly acidic water to mix sprays. Use a buffering agent if necessary to maintain neutrality (pH 6 to 8) of water in the tank. Maintain agitation during application. Apply immediately after mixing; do not allow spray mix to stand overnight.

CX-9032 can be mixed and used with other agricultural chemicals for which such mixing is permitted by the product labels, in accordance with the most restrictive of those label limitations and precautions. If such a mixture is planned, a compatibility "jar test" should first be conducted by mixing the correct proportions of CX-9032 and these products in a small volume of water.

APPLICATION METHODS

Ground: CX-9032 can be applied in most commonly-used ground application equipment, such as (but not limited to): tractor-mounted boom, airblast, high clearance, hose-end, backpack, and other pressurized sprayers; hose-end or hand-held sprayers; foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method.

Aerial: CX-9032 can be applied by fixed or rotary winged aircraft in a minimum of 3 gallons of water per acre. Standard precautions should be taken to minimize spray drift.

Chemigation: CX-9032 can be applied through drip (trickle) and sprinkler type irrigation equipment. Refer to the section entitled "Chemigation Instructions" for detailed instructions.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the Agency responsible for pesticide regulation.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

Agricultural crops

CROPS	DISEASES/PATHOGENS (See footnotes for additional information)
Vegetables and melons, including but not limited to:	
Brassica vegetables such as broccoli, cabbage, cauliflower, Brussels sprouts, kohlrabi, and other cole crops.	Pin rot complex (<i>Alternaria/Xanthomonas</i>)* Leaf spots (<i>Alternaria</i> spp., <i>Xanthomonas</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe polygoni</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Bulb vegetables such as onions, garlic, shallots, and others.	<i>Botrytis</i> spp. (neck rot, leaf blight) Purple blotch (<i>Alternaria</i> spp.) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Rust (<i>Puccinia porii</i>)* "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Cucurbits such as cucumbers, squash (all types), cantaloupes, muskmelons, watermelons, and other melons.	Powdery mildew (<i>Erysiphe</i> and <i>Sphaerotheca</i> spp.) Downy mildew (<i>Pseudoperonospora</i> spp.) Gummy stem blight (<i>Didymella bryoniae</i> and <i>Phoma cucurbitacearum</i>) See instructions below for "Soil application" against the following diseases: Vine decline (<i>Monosporascus cannonballus</i>) Charcoal rot (<i>Macrophomina phaseoli</i>) "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Fruiting vegetables such as tomatoes, peppers, eggplant, tomatillo, okra, and others.	Bacterial spot (<i>Xanthomonas</i> spp.)* ¹ Bacterial speck (<i>Pseudomonas syringae</i> pv. <i>tomato</i>)* ¹ Gray mold (<i>Botrytis cinerea</i>) Powdery mildew* (<i>Leveillula</i> , <i>Oidiopsis</i> , <i>Erysiphe</i> , and <i>Sphaerotheca</i> spp.) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Southern blight (<i>Sclerotium rolfsii</i>)*
Leafy vegetables such as head and leaf lettuce, celery, spinach, radicchio, arugula, watercress, and others (including leafy <i>Brassica</i> vegetables such as mustard and collard greens, kale, bok choy, and related crops).	Downy mildew (<i>Bremia lactucae</i> , <i>Peronospora</i> spp.)* Powdery mildew (<i>Golovinomyces</i> (<i>Erysiphe</i>) <i>cichoracearum</i>)* Bacterial blights Head and leaf drop (<i>Sclerotinia</i> spp.)* ² Pink rot (<i>Sclerotinia sclerotiorum</i>)* ² Leaf spots (<i>Cercospora</i> spp.) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. Bottom rot (<i>Rhizoctonia solani</i>)

Legume vegetables succulent and dried beans and peas such as green, snap, shell, and Lima beans, garbanzo beans, chickpeas, soybeans, dry beans, peas, split peas, lentils, and other legumes.	White mold (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Microsphaera diffusa</i>) Rusts*, including <i>Uromyces appendiculatus</i> , <i>Puccinia</i> spp., and Asian soybean rust (<i>Phyospora pachyrhizi</i>) “Damping off,” seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for “Soil application”).
Root, tuber, and corm vegetables such as potato, sweet potato, carrot, cassava, beets, ginger, radish, horseradish ²² , ginseng, turnip, and other root, tuber and corm crops.	Black root/crown rot (<i>Alternaria</i> spp.) Bacterial leaf blight (<i>Xanthomonas campestris</i>) Downy mildew (<i>Peronospora</i> spp.) Powdery mildew (<i>Erysiphe</i> spp.) Gray mold (<i>Botrytis</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Black leg /bacterial soft rot (<i>Erwinia carotovora</i>) Early blight (<i>Alternaria solani</i>)* Late blight (<i>Phytophthora infestans</i>)* See instructions below for “Soil application” against the following diseases: Black scurf (<i>Rhizoctonia solani</i>) Cavity spot (<i>Pythium</i> spp.) “Damping off,” seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.
Other vegetables such as sweet corn, popcorn, asparagus, peanut, and watercress	<i>Botrytis</i> spp. Rusts (<i>Puccinia</i> spp.) White mold (<i>Sclerotinia sclerotiorum</i>) ² Leaf spots (<i>Cercospora</i> and <i>Cercosporidium</i> spp.)* “Damping off,” seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp. (see instructions below for “Soil application”).
Tree fruits and nuts, including but not limited to:	
Citrus such as orange, lemon, lime, grapefruit, tangerine (mandarin), tangelo, pummelo, and other citrus	<i>Alternaria</i> leaf spot (<i>Alternaria alternata</i>) Postbloom fruit drop (<i>Colletotrichum acutatum</i>)* Greasy spot (<i>Mycosphaerella citri</i>) ³ Citrus canker (<i>Xanthomonas campestris</i> pv. <i>citri</i>) ¹ Scab (<i>Elsinoe fawcetti</i>)* ⁴ Melanose (<i>Diaporthe citri</i>)*
Pome fruits such as apple, pear, crabapple, quince, and others	Powdery mildew (<i>Podosphaera leucotricha</i>) ⁵ Scab (<i>Venturia</i> spp.)* Flyspeck (<i>Zygophiala jamaicensis</i>) ⁶ Sooty blotch disease complex ⁶ Brooks spot (<i>Mycosphaerella pomi</i>) ⁶ Bot rot/white rot (<i>Botryosphaeria dothidea</i>) ⁶ Bitter rot (<i>Colletotrichum</i> spp.) ⁶ Cedar apple rust (<i>Gymnosporangium juniperi-virginianae</i>) ⁶ Fire blight (<i>Erwinia amylovora</i>)* ⁷
Stone fruits such as apricot, cherry, nectarine, peach, plum, prune, pluot, and others	Powdery mildew (<i>Sphaerotheca</i> and <i>Podosphaera</i> spp.)* ⁸ Bacterial canker (<i>Pseudomonas</i> spp.) Brown rot blossom blight (<i>Monilinia laxa</i>) ⁹ Brown rot (<i>Monilinia fructicola</i>)* ¹⁰ Gray mold (<i>Botrytis cinerea</i>) ¹⁰ Peach leaf curl (<i>Taphrina deformans</i>) Bacterial leaf spot (<i>Xanthomonas arbuticola</i> pv. <i>pruni</i>) ¹ Rusty spot (<i>Podosphaera leucotricha</i>) ¹
Tree nuts such as almond, pistachio, pecan, walnut, filbert, hazelnut, chestnut, macadamia, and other tree nuts.	Walnut blight (<i>Xanthomonas campestris</i>) ¹¹ Anthracnose (<i>Colletotrichum acutatum</i>)* Bacterial canker (<i>Pseudomonas syringae</i>) Shot hole (<i>Wilsonomyces carpophilus</i>)* Brown rot (<i>Monilinia</i> spp.)* Pecan scab (<i>Cladosporium caryigenum</i>)* ¹

Pomegranates	Leaf and fruit spots (<i>Cercospora</i> , <i>Gloeosporium</i> and <i>Pestalotia</i> spp.) ¹ Fruit rots (<i>Alternaria</i> , <i>Botrytis</i> , and other spp.) ¹⁰ Powdery mildew (<i>Sphaerotheca pannosa</i>)
Other fruits, including but not limited to:	
Strawberry	Powdery mildew (<i>Sphaerotheca macularis</i> , <i>Erysiphe</i> spp.) ^{*12} Gray mold (<i>Botrytis cinerea</i>) ^{*11} Anthracnose (<i>Colletotrichum acutatum</i>) Angular leaf spot (<i>Xanthomonas fragariae</i>) ¹ For the following diseases, see instructions below for "Soil application" (and also root dip instructions ²²): "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. Charcoal rot (<i>Macrophomina phaseolina</i>)
Berries , including blueberry, blackberry, raspberry, loganberry, huckleberry, gooseberry, elderberry, cranberry (non-flooded fields), current, and other berries	Mummy berry (<i>Monilinia vaccinii-corymbosi</i>)* Botrytis blight (<i>Botrytis cinerea</i>) Bacterial canker (<i>Pseudomonas</i> spp.) ¹³ Anthracnose fruit rot (<i>Colletotrichum acutatum</i>) ¹⁰
Grapes including wine grapes, table grapes, and raisins	Powdery mildew (<i>Erysiphe</i> (formerly <i>Uncinula</i>) <i>necator</i>) ¹⁴ Gray mold (<i>Botrytis cinerea</i>) ¹⁵ Sour rot complex ¹⁵ Downy mildew (<i>Plasmopara viticola</i>)* Phomopsis (<i>Phomopsis viticola</i>) ¹⁶ Eutypa (<i>Eutypa lata</i>) ¹⁷
Tropical fruits such as avocado ¹⁸ , mango ¹⁸ , papaya ¹⁹ , pineapple ¹⁹ , banana, plantain, and others.	Anthracnose (<i>Colletotrichum</i> spp.) Scab (<i>Sphaceloma perseeae</i>) Bacterial canker (<i>Xanthomonas campestris</i>) Sigatoka (<i>Mycosphaerella fijiensis</i>) ²⁰
Other Crops	
Herbs and spices such as basil, thyme, coriander, dill, cilantro, parsley, mint, and others.	Powdery mildews (<i>Oidium</i> spp. and others) Downy mildews (<i>Peronospora</i> spp. and others)* Damping off diseases (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Alternaria</i> , and <i>Fusarium</i> spp.) Leaf spots (<i>Alternaria</i> , <i>Septoria</i> , <i>Colletotrichum</i> , and <i>Cercospora</i> spp.)* Bacterial diseases (<i>Erwinia</i> , <i>Xanthomonas</i> , and <i>Pseudomonas</i> spp.) Rusts (<i>Puccinia</i> spp. and others) "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Coffee	Coffee berry disease (<i>Colletotrichum coffeanum</i>) ¹ Coffee rust (<i>Hemileia vastatrix</i>) ¹ Anthracnose (<i>Colletotrichum</i> spp.) <i>Botrytis</i> flower blight <i>Cercospora</i> leaf spot and berry blotch "Damping off" and root or crown diseases caused by <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Pythium</i> , <i>Phytophthora</i> , and/or <i>Verticillium</i> * spp. (see instructions below for "Soil application").
Tobacco	Angular leaf spot (<i>Pseudomonas</i> spp.) Anthracnose (<i>Colletotrichum</i> and <i>Glomerella</i> spp.) Blue mold or downy mildew (<i>Peronospora</i> spp.)* Brown spot (<i>Alternaria</i>) Barn spot/ frog-eye leaf spot (<i>Cercospora nicotianae</i>) ¹⁰ Collar rot (<i>Sclerotinia sclerotiorum</i>) ² Gray mold (<i>Botrytis cinerea</i>) Powdery mildew (<i>Erysiphe cichoracearum</i>) Target spot (<i>Rhizoctonia solani</i>) See instructions below for "Soil application" against the following diseases: "Damping off," seedling blights, and root or crown diseases caused by <i>Pythium</i> , <i>Rhizoctonia</i> , <i>Fusarium</i> , <i>Olpidium</i> , <i>Phytophthora</i> , or <i>Verticillium</i> * spp.

	Charcoal rot (<i>Macrophomina phaseolina</i>) Black root rot (<i>Thielaviopsis basicola</i>) Black shank (<i>Phytophthora</i> spp.)* Southern blight/southern stem rot (<i>Sclerotium rolfsii</i>)*
Mint	Rust (<i>Puccinia</i> spp.)
Hops	Powdery mildew (<i>Sphaerotheca macularis</i>) ²¹
<p>Footnotes:</p> <p>*Suppression only; for improved control mix or rotate with chemical fungicide approved for such use.</p> <p>¹ Tank mix or rotate with copper-based fungicides at label rates for improved control.</p> <p>² Apply at or immediately following planting (but before plant emergence) as a banded seedline treatment 4 to 6 inches wide. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist.</p> <p>³ For greasy spot suppression, apply at first new foliar flush and repeat with each new flush. Tank mix with spray oil or copper based fungicide at labeled rates.</p> <p>⁴ For suppression of citrus scab, start applications at first new foliage flush and repeat at petal fall and when fruit are ½ inch in diameter.</p> <p>⁵ Make first application at or before tight cluster if conditions favor disease development. Repeat at 7-10 day intervals through the second cover spray or longer on susceptible varieties or if environmental conditions favor rapid disease development.</p> <p>⁶ Begin applications before bloom when environmental conditions favor disease development, repeating at 7 to 14 day intervals or as needed. Control may be enhanced by addition of a surfactant to improve spray coverage. Use only surfactants known to be safe for use on the crop and for which such use is allowed.</p> <p>⁷ Rotate with antibiotics registered for fire blight control for improved performance. Begin applications at 1-5% open blossoms and repeat every 3-7 days as necessary until petal fall, when intervals can be increased to 7 days. CX-9032 can also be used in summer "cover spray" applications to control the shoot blight phase of fire blight and summer diseases. Can be mixed with copper fungicides to improve control.</p> <p>⁸ Make first application at popcorn stage and repeat every 7 days.</p> <p>⁹ Start applying at early bloom stage and repeat every 7 days through petal fall.</p> <p>¹⁰ Pre-harvest applications in sufficient water to cover fruit or other harvested plant parts may improve control of postharvest infections.</p> <p>¹¹ Begin applications at or before pistillate bloom, repeating every 7-10 days. Apply before rainfall if possible, and tank mix or rotate with a copper-based bactericide registered for such use for improved control.</p> <p>¹² Start applications at or just before flowering and repeat every 7-10 days as needed through harvest.</p> <p>¹³ Apply before fall rains and again during dormancy before spring growth.</p> <p>¹⁴ Start applications when new shoots are ½ to 1 ½ inches long. Repeat at 3-5 inches, 8-10 inches, and then at 7-10 day intervals until disease conditions no longer exist.</p> <p>¹⁵ Apply at bloom, before bunch closure, at veraison, and before harvest.</p> <p>¹⁶ Apply when shoots are ½ to 1 inch long and again when 6-8 inches long.</p> <p>¹⁷ Mix 2 fluid ounces CX-9032 per gallon of water and apply to pruning wounds.</p> <p>¹⁸ Apply at budbreak and repeat on 14-21 day interval as needed through harvest.</p> <p>¹⁹ Apply at flowering and repeat on 14-21 day interval as needed through harvest.</p> <p>²⁰ Apply at first appearance of leaves and repeat at 7-21 day intervals as needed, in sufficient water to obtain thorough coverage of foliage. Tank mix with spray oil or other registered fungicides for improved control.</p> <p>²¹ Mix 6 to 10 fluid ounces CX-9032 per 100 gallons of water and apply in minimum of 20 gallons per acre from emergence to training, 50 gallons per acre from training to wire, and 100 gallons per acre from wire touch through harvest.</p> <p>²² For treatment of horseradish or strawberry roots immediately before transplanting: immerse bare roots (individually or in bunches) for 10 seconds in a suspension of 1 to 2 pints CX-9032 per gallon of water.</p>	

Foliar application: For control of diseases on foliage, flowers, fruit, or other above-ground parts of plants: Mix CX-9032 in water and apply as a spray at a rate of 0.5 to 6 quarts per acre in sufficient water to achieve thorough coverage of the crop canopy with minimal runoff. Begin applications at crop emergence, transplanting, or when conditions are conducive to development of disease. Repeat application every 3 to 10 days, or as needed, for as long as conditions favor disease development. Lower rates (0.5 to 3 quarts per acre) may be applied under light disease pressure, to smaller (e.g. newly-emerged) plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use

higher label rates (3-6 quarts/acre), apply more frequently (every 3-7 days), and mix or rotate CX-9032 with other fungicides for improved performance.

Soil application: For control of soilborne diseases infecting seeds, seedlings, roots, crown, stems, or other plant parts below ground or in contact with soil: Apply CX-9032 at **0.5 to 4.5 pints per acre**. Mix the required amount in sufficient water to apply by one of the following methods:

- Soil drench applied to transplants in flats or pots in the greenhouse or nursery any time prior to transplanting (see additional drench instructions under “Nurseries, greenhouses, shade houses, and ornamental plants” below).
- Soil drench at transplanting, using a “water wheel” injector, spray nozzles/hoses, or other method to drench each root ball and/or planting hole.
- Soil or seedline drench, or banded spray (in-furrow) at planting. See the section on “Banded (in-furrow) application” below for additional instructions.

Follow-up (post-planting) preventative applications can be made every 2-4 weeks by one or more of the following methods, if needed:

- Drip (trickle) or any type of sprinkler irrigation, any time after planting or transplanting. See Chemigation Instructions for additional information.
- Spray directly onto the soil surface and/or lower plant parts. If targeting root disease, follow immediately with sufficient overhead sprinkler irrigation to move CX-9032 to the root zone.
- Injection directly into the rooting zone using shanks or similar equipment.

Lower rates (0.5 to 2 pints per acre) may be applied under light disease pressure, to smaller plants, or when CX-9032 is used in a tank mix with other fungicides whose labels allow such use. Under moderate to severe disease pressure, or when environmental conditions and plant stage are conducive to rapid disease development, use higher label rates (2 - 4.5 pints per acre), apply more frequently (every 2 weeks), and mix or rotate CX-9032 with other fungicides for improved performance.

Banded (in-furrow) application: Use the table below to determine the correct application rate in fluid ounces per 1,000 row feet based on row spacing and desired rate per acre. Mix the required amount of CX-9032 in water and apply as banded spray (4” to 6” wide) or seedline drench centered over the planting furrow. Apply directly over seeds in the furrow just before they are covered with soil. The volume of water required per acre or per 1,000 row feet will depend on the application equipment used. Consult your local cooperative extension service if you need assistance calibrating band spraying equipment.

Rates for banded (in-furrow) application: Find desired application rate in the left column. Read across that line to the correct row spacing indicated at the top to find the number of fluid ounces per 1,000 row feet that will provide the desired application rate per acre.

Rate/acre		Space between rows (inches)														
Pints	fl oz	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
0.5	8	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6
0.75	12	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9
1.0	16	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.2	1.2
1.25	20	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.5
1.5	24	0.6	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.7	1.8
1.75	28	0.6	0.7	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1
2.0	32	0.7	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.2	2.3	2.4
2.25	36	0.8	1.0	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	2.3	2.5	2.6	2.8
2.5	40	0.9	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.8	2.9	3.1
2.75	44	1.0	1.2	1.3	1.5	1.7	1.9	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2	3.4
3.0	48	1.1	1.3	1.5	1.7	1.8	2.0	2.2	2.4	2.6	2.8	2.9	3.1	3.3	3.5	3.7
3.25	52	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
3.5	56	1.3	1.5	1.7	1.9	2.1	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.9	4.1	4.3
3.75	60	1.4	1.6	1.8	2.1	2.3	2.5	2.8	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6
4.0	64	1.5	1.7	2.0	2.2	2.4	2.7	2.9	3.2	3.4	3.7	3.9	4.2	4.4	4.7	4.9
4.25	68	1.6	1.8	2.1	2.3	2.6	2.9	3.1	3.4	3.6	3.9	4.2	4.4	4.7	4.9	5.2
4.5	72	1.7	1.9	2.2	2.5	2.8	3.0	3.3	3.6	3.9	4.1	4.4	4.7	5.0	5.2	5.5

Nurseries, greenhouses, shadehouses, and ornamental plants

Spray application: Mix 0.5 to 6 quarts of CX-9032 per 100 gallons of water and apply as a foliar spray of sufficient volume to wet the entire plant with minimal runoff. Begin preventative applications at plant emergence and repeat every 3-28 days as needed (every 3-7 days if disease pressure is high or environmental conditions are highly favorable to disease outbreak, 10-28 days under low pressure or less conducive conditions).

Drench application: Mix 0.5 to 4.5 pints of CX-9032 per 100 gallons of water and apply as a drench or coarse spray to soil or other growing media in pots, flats, plugs, trays, or planting beds, for control or suppression of soilborne diseases of seedlings, cuttings, bedding plants, and transplants (including vegetables and other transplanted food crops). Make first application at or immediately before seeding, sticking, germination, or transplanting. Repeat applications every 14-28 days as needed. Transplants can be treated immediately before transplanting into field soils to protect against damping-off and other diseases that reduce plant establishment.

Cutting or root dip: Dip basal end of cuttings or bare roots (individually or in bunches) in a suspension of 1 to 2 pints of CX-9032 per gallon of water. Immerse for 5-10 seconds immediately before planting.

Chemigation: Mix 0.5 to 4.5 pints of CX-9032 per 100 gallons of water and apply via drip, handheld, or sprinkler irrigation systems. Refer to "Chemigation Instructions" for more details.

CROPS/USE SITES	DISEASES/PATHOGENS
Indoor, outdoor, and shade- or other cover-grown ornamental trees and shrubs, flowering plants, foliage plants, tropical plants, potted plants, potted or cut flowers, bedding plants, forestry seedlings, conifer production for	Powdery mildews caused by <i>Erysiphe</i> , <i>Podosphaera</i> , <i>Sphaerotheca</i> , <i>Oidium</i> , and <i>Golovinomyces</i> spp.) Anthracnose (<i>Colletotrichum</i> spp.) Bacterial leaf spots caused by <i>Erwinia</i> , <i>Pseudomonas</i> , and <i>Xanthomonas</i> spp. Damping-off disease (<i>Rhizoctonia</i> , <i>Pythium</i> , <i>Fusarium</i> spp.) Late blight, blackeye, and root rots caused by <i>Phytophthora</i> spp. Gray mold and blight caused by <i>Botrytis cinerea</i>

reforestation, fruit trees, vegetables and other crops grown in greenhouses or nurseries.	Black root rot (<i>Aspergillus</i> spp.) Black spot of roses (<i>Diplocarpon rosae</i>) Downy mildew (<i>Peronospora</i> spp.) Leaf spots caused by <i>Alternaria</i> , <i>Septoria</i> , <i>Cercospora</i> , <i>Entomosporium</i> , <i>Helminthosporium</i> , and <i>Myrothecium</i> spp.) Rust (<i>Puccinia</i> spp.) Scab (<i>Venturia</i> spp.) Root rot, bottom rot, or stem rot caused by <i>Rhizoctonia solani</i> <i>Sclerotinia</i> blight <i>Fusarium</i> wilts
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Turfgrass application

For control of foliar diseases, apply CX-9032 at 1 to 4 fluid ounces per 1,000 square feet as a ground-directed spray in sufficient water to provide thorough coverage. To control root and crown diseases in or on the soil, immediately follow the spray with sufficient overhead sprinkler irrigation to move the product into the root zone.

USE SITES/CROPS	DISEASES/PATHOGENS
Turf, sod, lawns, golf course (fairways, roughs, greens, tees), grass seed production Including but not limited to: Bluegrass, Bentgrass, Bermudagrass (common & hybrid), Dichondra, Fescue, Orchardgrass, <i>Poa annua</i> , St. Augustine grass, Ryegrass, <i>Zoysia</i> , mixtures, and other grasses or ornamental turf	Anthracnose (<i>Colletotrichum graminicola</i>) Brown patch (<i>Rhizoctonia solani</i>) Dollar spot (<i>Lanzia</i> and <i>Moellerodiscus</i> spp., formerly <i>Sclerotinia homeocarpa</i>) Powdery mildew (<i>Erysiphe graminis</i>) Rust (<i>Puccinia</i> spp.) Gray leaf spot (<i>Pyricularia grisea</i>) "Damping off" or seedling blights caused by <i>Pythium</i>

CHEMIGATION INSTRUCTIONS**General information:**

Apply this product through pressurized irrigation systems such as drip (trickle) irrigation (including micro-irrigation through spaghetti tubes or individual tubes) or sprinkler irrigation (including impact or microsprinklers, microjet, overhead boom, water gun, solid set, lateral move, end tow, side-roll, center pivot, or hand move, including mist-type systems); or with hand-held calibrated irrigation equipment (such as a hand-held wand with injector). Do not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and injector system and flush with clean water before use. Failure to provide a clean tank, free of scale or residues may reduce effectiveness of this product.

Drip (trickle) and micro-irrigation chemigation

1. The system must contain a functional check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer, or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.

Sprinkler chemigation:

1. The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

5. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
6. Systems must use a metering pump, such as a positive displacement injection pump (i.e., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7. Dilute the product in water following the label mixing directions. It may be premixed in a supply tank with water, fertilizer or other appropriate tank-mixed agricultural chemicals. Agitation is necessary. Apply to moderately moist soils. Use volumes that thoroughly wet the soil but that do not cause significant runoff or excessive drip from pots. Application should be continuous in sufficient water to apply the recommended rate evenly to the entire treated area.
8. Do not apply when wind speed favors drift beyond the area intended for treatment.

WARRANTY

Certis USA, L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purpose referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the disease problem, condition of the crop, incompatibility with other influencing factors in the use of this product are beyond the control of the seller. Buyer assumes all risks of use, storage, or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.

The following claims may be presented on the product's labeling:

OMRI Listed
OMRI seal

MASTER LABEL
SUBLABEL B: Homeowner Use**CX-9032**

Aqueous Suspension Biofungicide/Bactericide for control of plant diseases in home gardens, vegetables, ornamental and fruit trees, shrubs, lawns, flowers, bedding plants, and potted ornamental plants

FOR ORGANIC GARDENING**Active Ingredient:**

Bacillus subtilis var. *amyloliquefaciens* strain D747* 98.35%

Other Ingredients 1.65%

Total 100.00%

*Contains a minimum of 1×10^{10} colony-forming units (cfu) per milliliter

EPA Reg. No. 70051-

EPA Est. No. 70051-CA-001

Manufactured by: Certis USA, L.L.C.

9145 Guilford Rd., Suite. 175

Columbia, MD 21046

NET CONTENTS:

Lot No.:

KEEP OUT OF REACH OF CHILDREN

CAUTION

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

PRECAUTIONARY STATEMENTS**HAZARDS TO HUMANS (AND DOMESTIC ANIMALS): CAUTION:**

Harmful if inhaled. Avoid breathing spray mist. Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Causes moderate eye irritation. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

FIRST AID

If inhaled:: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.

Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. Hot Line Number: 1-800-255-3924

ENVIRONMENTAL HAZARDS:

To protect the environment, do not allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

GENERAL INFORMATION

CX-9032 is a broad-spectrum preventative biofungicide/bactericide for control or suppression of fungal and bacterial plant diseases. The active ingredient of CX-9032 is a naturally occurring strain (D747) of the beneficial bacterium *Bacillus subtilis* var. *amyloliquefaciens*. CX-9032 kills pathogenic organisms on foliage and other plant parts by producing antibiotic compounds (iturins) which disrupt pathogen cell wall production. CX-9032 also colonizes plant root hairs, preventing establishment of disease-causing fungi and bacteria.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.

Mixing instructions:

CX-9032 must be mixed with water and applied as a spray to fruit and foliage, or as a drench to plant roots. See below for specific mix rate information.

Application rates and methods:

Spray application for control of powdery mildews, leaf spots, anthracnose, gray mold, and other diseases affecting leaves, flowers, fruit, and other above-ground plant parts: Mix 1 teaspoon of CX-9032 per gallon of water and apply directly to plants using a hand pump sprayer or other suitable spray equipment. Spray just enough to wet all leaves and fruit with minimal run-off or dripping. Total coverage depends on the size of plants to be sprayed and the type of sprayer used. Repeat as needed to maintain disease control, typically every 7-10 days. If disease is prevalent or environmental conditions such as high humidity favor disease outbreak, increase the mixing rate to 1 tablespoon per gallon and shorten the interval between sprays to every 3-7 days.

Drench application for control of diseases affecting plant roots, tubers, or other parts of the plant in contact with soil: Mix 1 teaspoon of CX-9032 per gallon of water and apply to the soil by one of the following methods:

1. For potted plants (indoors or outdoors), apply in sufficient water to wet the entire root mass using a watering can or tank-fed watering wand. Do not water plants again until 24 hours after application. Alternatively, use a hand-pump or other sprayer to spray the mixture on the soil surface in each pot, then immediately apply sufficient water to move the product into the roots.
2. Drench the roots of transplants with approx. 4 fluid ounces of the mixture immediately before transplanting into pots or garden soil. Allow to soak into the root ball before transplanting.

3. For outdoor-grown plants, use a watering can or sprayer to drench the soil in the planting furrow or transplant hole immediately before planting or transplanting. The amount of water required will depend on the size of the hole or length of furrow.
4. Alternatively, apply in the first watering after planting or transplanting, either by mixing directly into the water at the rate indicated above, or by spraying onto the soil surface at the base of each plant and immediately watering in with a watering can, hose, sprinkler, or other watering device.

CX-9032 can be applied up to and including the day of harvest.

For application to lawns and other turfgrass areas: Mix 1 teaspoon of CX-9032 per gallon of water and apply as a fine spray to the surface of the lawn or grass area. Total amount of mix required will depend on the type of sprayer used and area to be covered, but typically 2 to 5 gallons of spray mix may be required per 1,000 square feet of turf. CX-9032 can be "watered in" for control of soilborne root and crown diseases by thorough watering immediately after application either with sprinklers or by spraying just before or during light rain.

STORAGE AND DISPOSAL

PESTICIDE STORAGE:

Keep in original container. Store away from direct sunlight, feed, or foodstuffs. Keep container tightly sealed when not in use.

PESTICIDE DISPOSAL AND CONTAINER HANDLING

Non-refillable container. Do not reuse or refill container.

If empty:

Place in trash or offer for recycling, if available.

If partly filled:

Call your local solid waste agency for disposal instructions. Never place unused product down any indoor or outdoor drain.

WARRANTY

Certis USA L.L.C. warrants that the material contained herein conforms to the description on the label and is reasonably fit for the purposes referred to in the directions for use. Timing and method of application, weather, watering practices, nature of soil, the insect problem, condition of the crop, incompatibility with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the seller. Buyer assumes all risks of use, storage or handling of this material not in strict accordance with directions given herein. NO OTHER EXPRESS OR IMPLIED WARRANTY OF THE FITNESS OR MERCHANTABILITY IS MADE.